MASTER‘S THESIS

HIGH-RISE APARTMENT BLOCK IN RIGA NEIGHBOURHOOD JUGLA, LATVIA

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and Architecture

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Professuurikoodi:	A-52
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Tiivistelmä

Juglan kaupunginosa sijaitsee noin 10 kilometrin päässä Riikan keskustasta. Se on arvostettu asuinalue, joka on luonnon ympäröimän lähiökehän reunalla hyvien kulkuyhteyksien päässä. Yli puolet alueesta on viher- ja vesialuetta, tarjoten asukkaille on hyvät virkistysmahdollisuudet. Alueella 1800-luvulla nopeasti kehittynyt teollisuus ja 1960-luvun ensimmäiset, suuren mittaluokan elementtilähiöt ovat jättäneet jälkensä Juglaan. Monien muiden Riikan esikaupunkien tapaan Juglaakin leimaa neuvostoaikaiset korkeat asuintornit, jonka vuoksi alueen kokonaisilme on sekava ja rakenne väljä ja epäyhtenäinen. Aluerakenteen ja asuntojen saattaminen humaanimmiksi, korkeatasoiseksi asuinympäristöksi vaatii suuria investointeja.

Diplomityö käsittelee yksittäisen tyyppiesimerkin avulla mahdollisuutta parantaa rakennetun ympäristön laatua ja eheyttää aluerakennetta. Hankkeella on potentiaalia realisoitua rakennushankkeeksi; diplomityö on jatkoa Latvian Development Companyn 2014 antamalle suoralle toimeksiannolle tontinkäytön alustavasta luonnossuunnittelusta. Diplomityön tarkoitus on kehittää luonnossuunnitelman lähtökohtia hiotummaksi ja viimeistellymmäksi suunnitelmaksi. Samalla pyritään ratkaisemaan autopaikoituksen ja yhteisen sisäpihan problematiikkaa ja kiinnittämään huomiota käytettävyyteen ja arkkitehtuuriin.

Vaikka tontti sijaitsee vilkkaan ja hyvät yhteydet tarjoavan Brivibas-kadun lähellä, on sitä reunustava vähän liikennöity Juglankatu rauhallinen ja vehreä. Tontilla ja sen lähiympäristössä on nykyisellään paljon puustoa ja sen luoteisreunassa kulkee Gailupiten joenuoma. Tontilla sijaitsevat nykyiset rakenteet pitää purkaa – ne ovat huonokuntoisia ja osan niistä on todettu olevan turvallisuusriski. Uusien rakennusten pitää noudattaa paikkaan sidottuja suunnittelumääräyksiä Riikan maankäytön ja rakennusmääräysten ohjeistusta noudattaen.

Avainsanat Arkkitehtuuri, Asuntosuunnittelu, Jugla lähiö, Rakennuttaminen Riiassa

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Abstract

The Jugla neighborhood is located roughly 10km away from Riga city center at the edge of suburb ring bordering with the periphery of nature. It is a well-connected and appreciated residential area with conveniently planned and extensive social infrastructure. In addition more than half of its territory is occupied by the nature and lakes providing it's inhabitants with extensive recreation opportunities. Nevertheless the rapid development of industry in the beginning of 19th century has left its marks, as has the project of massive scale for first prefabricated large panel housing estates in the 60's. Even today Jugla like many other neighborhoods in Riga is characterized by the Soviet-era high-rise apartment buildings. The spatial structure of neighborhood is rather complex and lax compositional uniformity. There is a need for significant investments to humanize the planning and households in order to provide the existing and new residents with higher standard dwelling environment.

This Master's thesis examines the possibility for improving the quality of built environment through a potential housing development on a Juglas street 11, 13 building site in Riga suburb Jugla, Latvia. This work is a continuation of a study commissioned by Latvian developing company in 2014 that resulted in a draft proposal for the potential use of the territory owned by the company. The objective of this study is to improve upon the early concept and to develop the proposed solution into more refined and elegant design while dealing with consisting problem of inner courtyard over-night parking and comfort of shared public domain. The functionality and architecture of proposed structures is addressed as well.

Despites the fact that building plot is conveniently located in a close reach of a Brivibas alley / A2 national road the Juglas street adjacent to territory is a quite and green alley with little traffic. The surroundings as well as area in question are abundantly covered with trees and a natural riverbed of Gaiļupīte stream flows by the North West edge of the border. The current structures occupying the land are in very poor conditions and some of them are even considered degrading and dangerous for the environment, meaning that all current structures have to be removed. The new structures have to be designed according to the Design regulations and binding conditions for particular territory, presented in the graphical part of Riga territory use and building regulations.

Keywords Architecture, Housing Design, Jugla suburb, Development in Riga

Aerial view of Jugla

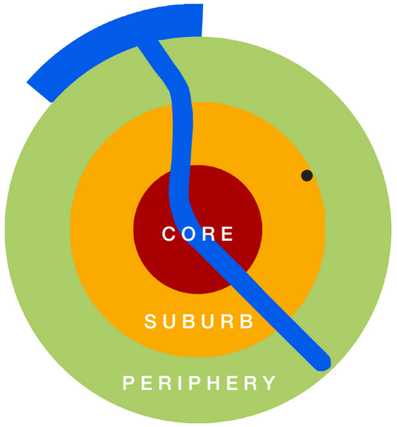
Introduction

This diploma work studies a potential housing development on a building site in Riga suburb Jugla, Latvia, owned by a large building and developing company Arcers (Arčers) operating in Latvia. Following the Riga Territorial Plan which defines the politics of land use in the city as well as considering the location and surroundings of building plot, economical situation and demand in the country, it was decided to study the potential development as a group of housing units. The early studies were carried out as a commission and draft proposal was delivered to client. The distribution of dwelling types and sizes were roughly discussed with the owner as well as other minor details to consider, but no further special recommendations were presented.

The early studies were made considering the owner's wish for maximum return, taking in account regulations by Riga City Building Construction Directorate, as well as architectural quality of built environment and public space. Further study that progressed as basis for this diploma work was carried out independently with no relation to client or commission mentioned earlier.

Located in close reach of A2 national road connecting Riga to Estonian border, also known as Vidzeme highway in Latvia, it is a well-connected spot with convenient connections both by public transport and private vehicle, taking only about a half an hour to reach the Riga downtown. At the same time Jugla neighborhood is known for its vast areas of nature and amount of lakes present.

Background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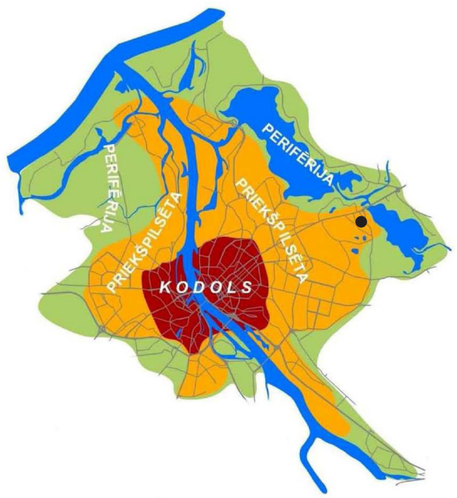
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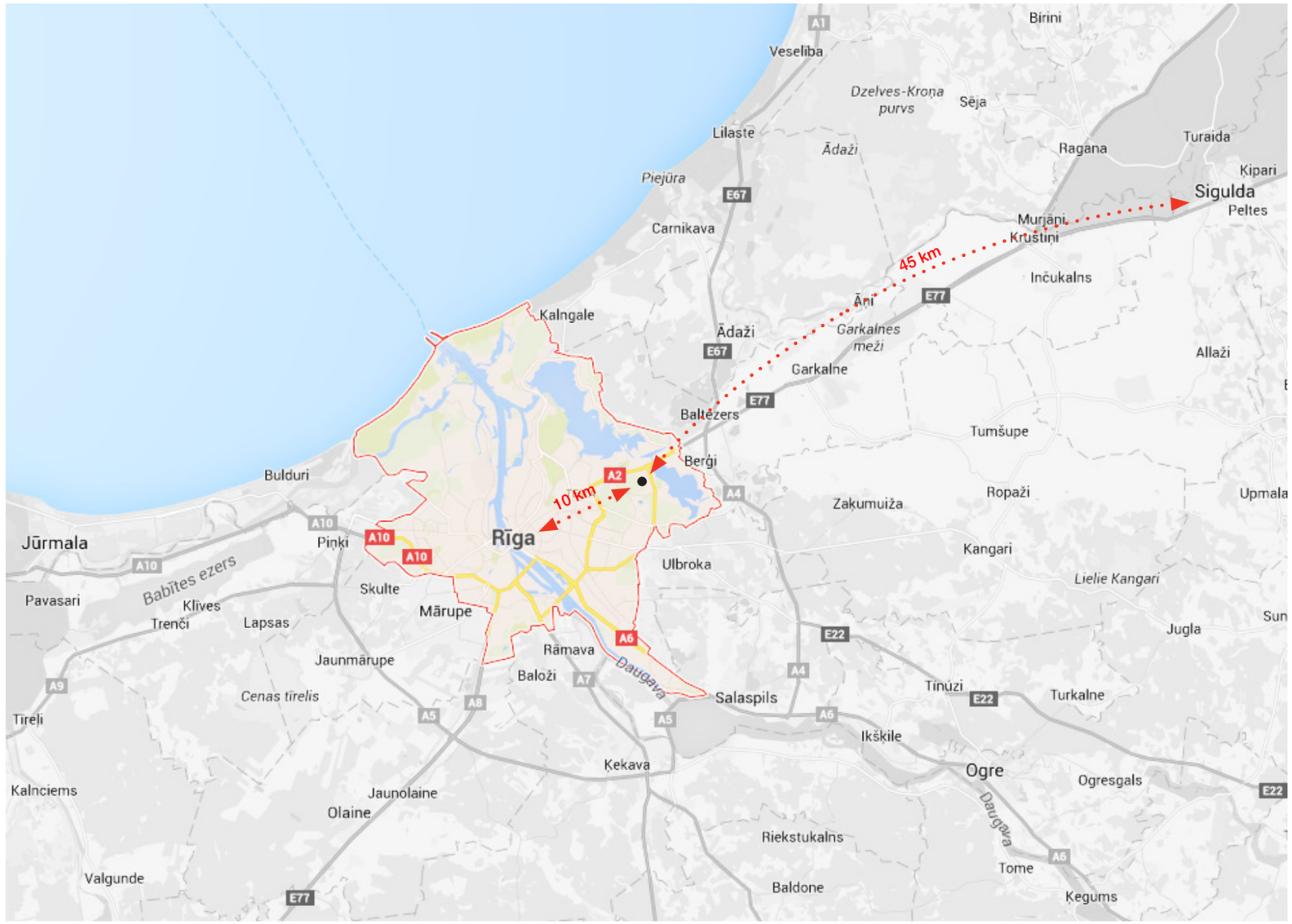
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Kangari
Pavasari
Babītes ezers
Skulte
Klīves
Trenči
Lapsas
Mārupe
Lielie Kangari
Jugla
Jaunmārupe
Rāmava
Baloži
Daugava
Cenas tīrelis
Salaspils
Tīnūži
Turkalne
Tīreļi
Ikšķile
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Ogre
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E22

Transport infrastructure development scheme

Location

According to strategy “Riga on its way towards sustainable city” published by Riga City Council City Development Department, Jugla neighborhood is located at the edge of suburb ring (yellow) meeting the green/blue periphery of nature, yet being well connected to city core (red) both by public transport and through main roads for private transport. Actually three main roads – Brivibas alley (also an A2 national road), Juglas and Biķernieku streets are intersecting the neighborhood, as well as Riga – Valmiera railway line with a dedicated station providing train access towards downtown coreand other cities such as Sigulda and Cesis in opposite direction. Jugla is only about 10 km away from the city center and a drive there via Brivibas street takes roughly 30 minutes. Public transport takes just slightly more – 35 minutes. The distance to City of Sigulda is almost 45 km and Cesis a little bit over 80 km.

Strazdmuiza park near Jugla lake in 1779

Jugla in 1944, around lake Velnezers

Strazdmuiza park near Jugla lake in 1792

Riga neighborhoods and borders of administrative entities

History

The capital city of Latvia – Riga is divided into six administrative entities and since 1990 their names are Central District, Kurzeme District, Latgale Suburb, Northern District, Vidzeme Suburb and Zemgale Suburb.[1] Jugla neighborhood (nr. 44 in map) is part of Vidzeme Suburb which is the third largest administrative unit and one of the 58 Riga's neighborhoods according to the Riga City Council City Development Department project started in 2008.

Jugla neighborhood is located at the Eastern border of Riga by the Ķīšu and Jugla lakes that used to serve as natural protection from outside intruders, therefore it is often referred by name of Riga City Gates within locals. This territory was historically populated by Livonians or Livs and its name is one of the few extant Livonian words in Riga's place-names. The land was used for agriculture, fishing and forestry as well as a popular recreational place by the lake Kisezers amongst locals in the 18th and 19th century.

1 Municipal Portal of Riga

Paper factory in Jugla, 1958

View from Silciema street in Jugla, 1968

Aerial view towards Jugla street connection to Brivibas street
and building plot in question at the upper left corner,1981

The beginning of 19th century marks a turning point in Jugla's history when a rapid development of industry hit the neighborhood. Sugar manufacturing was first to arrive, followed by the building of factories for producing linen, matchsticks, barrels as well as chemicals were built. Jugla rapidly became an important center of industry and continued to maintain its status during first Independence and Soviet era. During postwar years Jugla was particularly known for its textile industry.

In the middle of the 20th century the building of private houses began but already by 1960's the construction of first massive scale project of large panel housing estates with public building complexes started. Since then the neighborhood have developed in steady pace and nowadays the territory of 1409.9 ha is populated by 25 518 inhabitants.

Map of Riga, 1941

Map of Riga, 1988

Map of Riga, 2015

Aerial view of new traffic junction in Jugla

In 2008 the new traffic junction was finished to relieve heavily occupied Brivibas street from the incoming traffic towards city center and welcome the people into city, yet again becoming in a way the City Gates of Riga.


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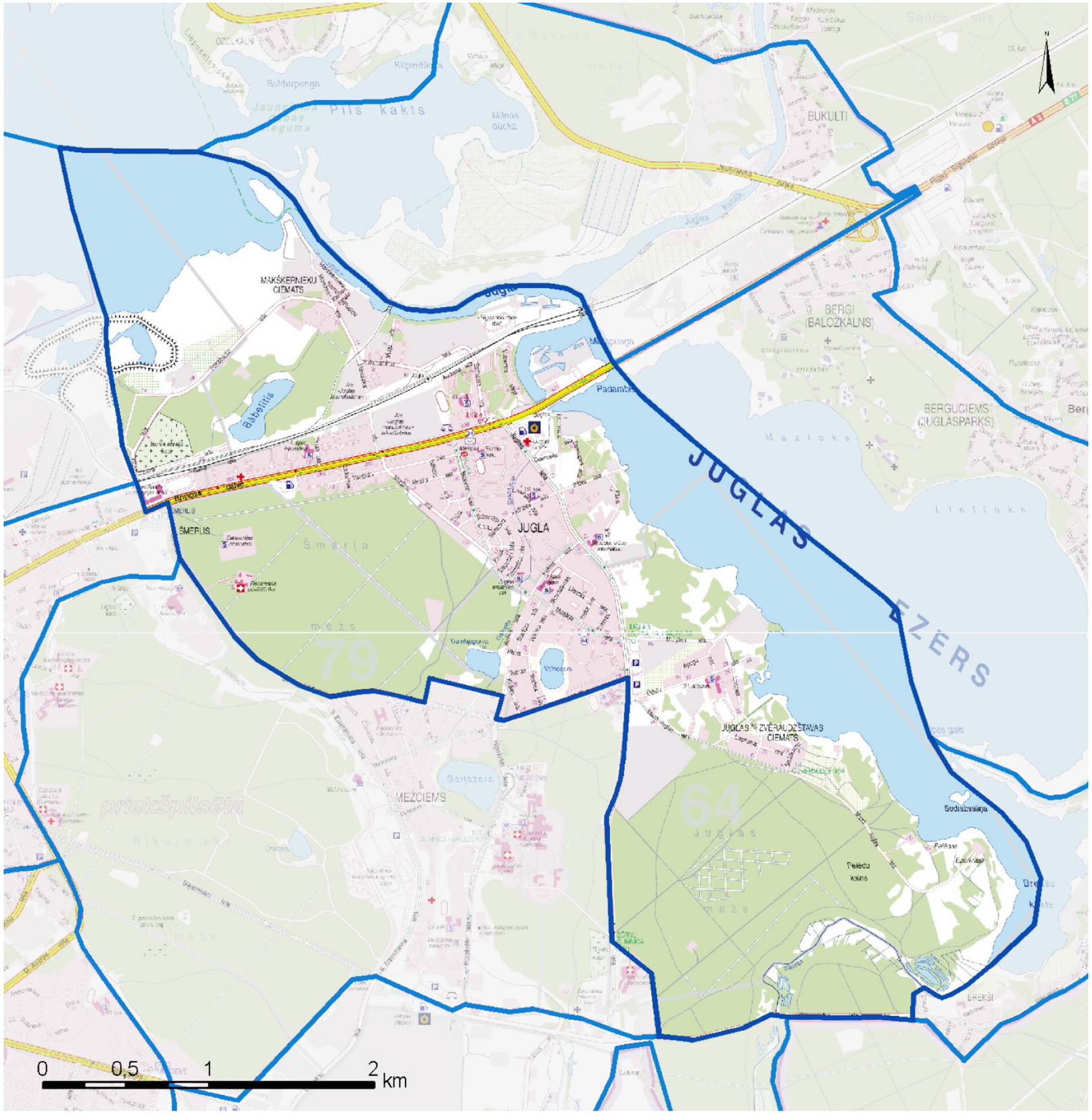
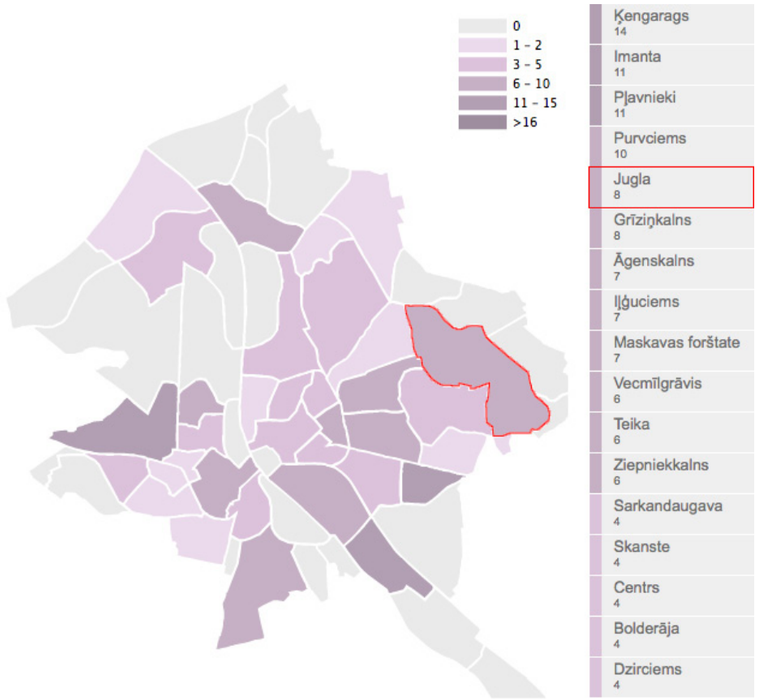
Neighborhood

Just like many other neighborhoods in Riga, Jugla is characterized by the Soviet-era high-rise apartment buildings and most of the retailers along with other services concentrated by the Brivibas street. The spatial structure of neighborhood is quite complex and lacks compositional uniformity. It is hard to distinguish a strong local centre, instead there are several smaller local centres around which the developments are concentrated. These areas are not well-connected in between and functional integrity is missing. Therefore it is hard to talk about Jugla neighborhood in a general matter. The local conditions, for example reachability by public transport or public services, might differ radically when comparing the two parts of Jugla.



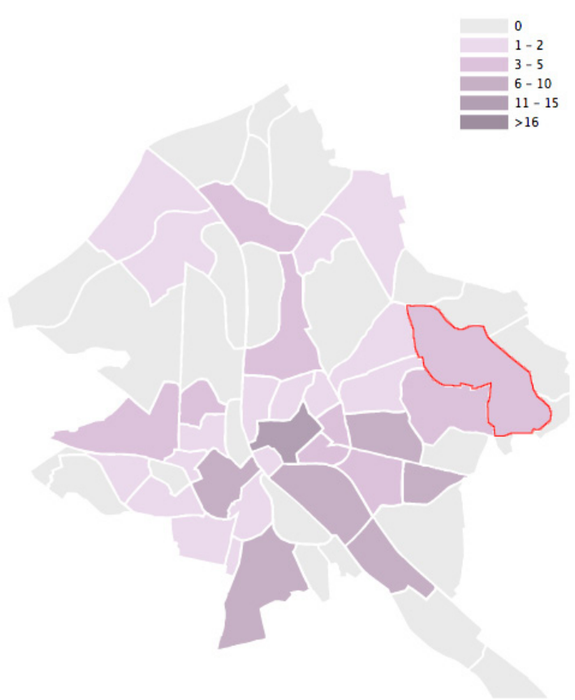
Map of Jugla neighborhood

Despite vast 1409.9 ha accounting for Jugla's territory, making it the second biggest neighborhood in Riga, it is scarcely populated - only 18 inhabitants per hectare or 1932.76 inh/km^2, according to official statistics of Riga City Council City Development Department. The reason for low density is obvious when one takes look at the City Map. Roughly 23% of Jugla's surface is covered with water and another 42% consist of untouched and harnessed nature, leaving only around 35% of land to inhabit. Of the built area, housing accounts for 9% of territory, mixed-use development 7.2% and comparatively large area – 5.6% or 78,9 ha are built up with private houses. The public buildings cover only 2,5% of neighborhoods area while roads and streets cover up to 7,3% due to the wide Brivibas street red line passage. Though it is clear that the actual percentage is considerably higher when taking into account the innner yard overnight parking areas of high-rise residential buildings, which still remain the main problem of Jugla neighborhood.



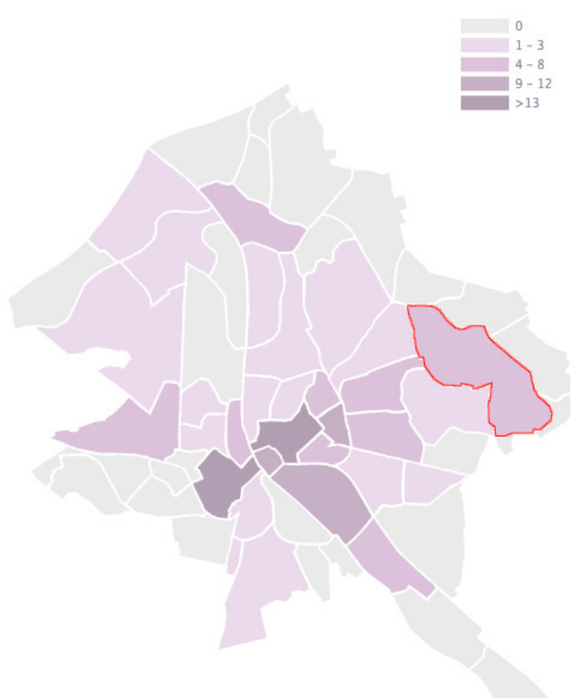
Ķengarags	14
Imanta	11
Pļavnieki	11
Purvciems	10
Jugla	8
Grīziņkalns	8
Āgenskalns	7
Iļģuciems	7
Maskavas forštate	7
Vecmīlgrāvis	6
Teika	6
Ziepniekkalns	6
Sarkandaugava	4
Skanste	4
Centrs	4
Bolderāja	4
Dzirciems	4

Preschool education institutions



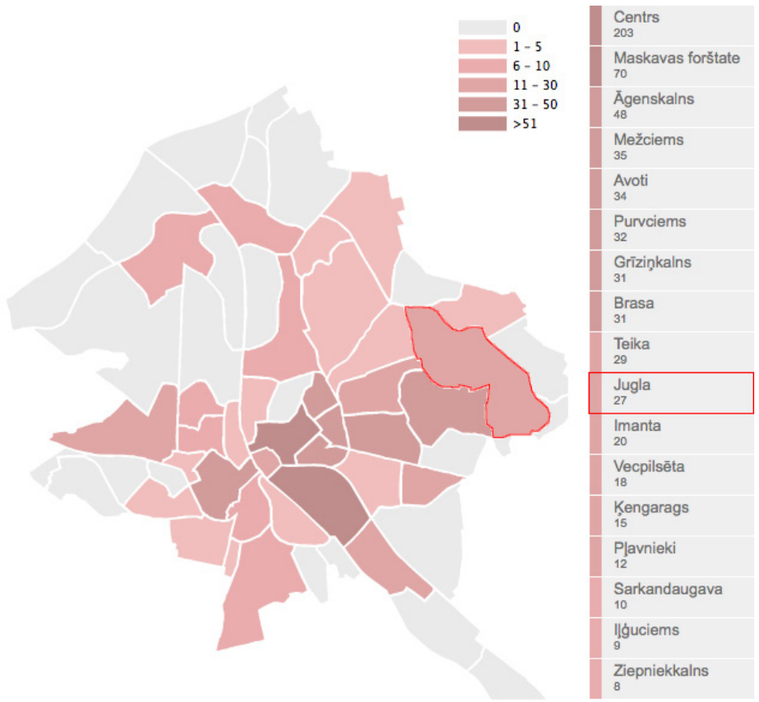
Centrs	15
Purvciems	9
Ķengarags	8
Maskavas forštate	7
Pļavnieki	6
Ziepniekkalns	6
Āgenskalns	6
Jugla	5
Grīziņkalns	5
Imanta	5
Iļģuciems	4
Mežciems	4
Avoti	4
Vecmīlgrāvis	3
Dārzciems	3
Sarkandaugava	3
Dzirciems	2

Elementary schools



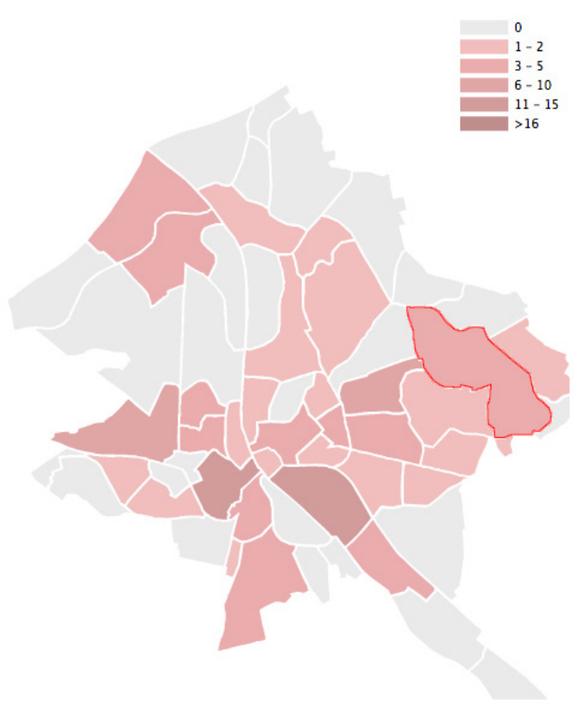
Centrs	48
Āgenskalns	18
Vecpilsēta	12
Maskavas forštate	11
Grīziņkalns	11
Avoti	8
Purvciems	7
Brasa	7
Imanta	6
Teika	5
Ķengarags	4
Vecmīlgrāvis	4
Jugla	4
Ķīpsala	4
Dzirciems	3
Sarkandaugava	3
Daugavgrīva	2

Other education institutions



Centrs	203
Maskavas forštate	70
Āgenskalns	48
Mežciems	35
Avoti	34
Purvciems	32
Grīziņkalns	31
Brasa	31
Teika	29
Jugla	27
Imanta	20
Vecpilsēta	18
Ķengarags	15
Pļavnieki	12
Sarkandaugava	10
Iļģuciems	9
Ziepniekkalns	8

Healthcare institutions



Āgenskalns	14
Maskavas forštate	11
Teika	9
Imanta	6
Centrs	5
Ziepniekkalns	5
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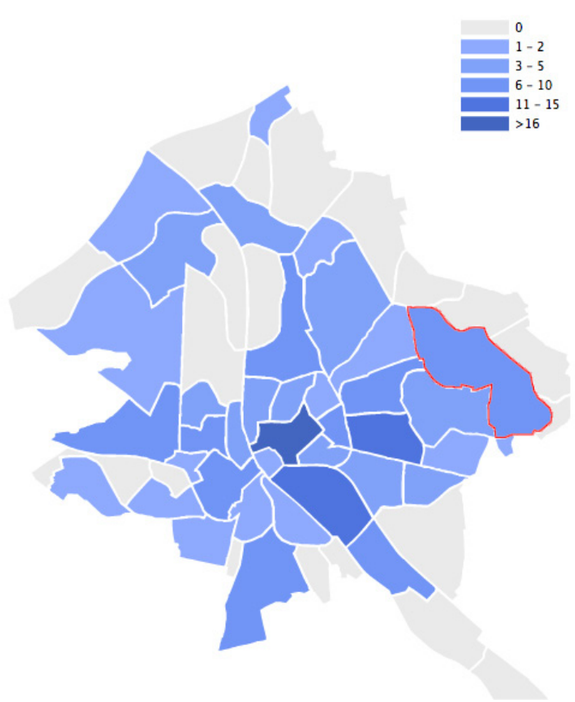
Jugla	3
Mīlgrāvis	2
Vecpilsēta	2

Social care facilities



Centrs	30
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Jugla	8
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Sarkandaugava	6
Teika	6
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Mežaparks	5
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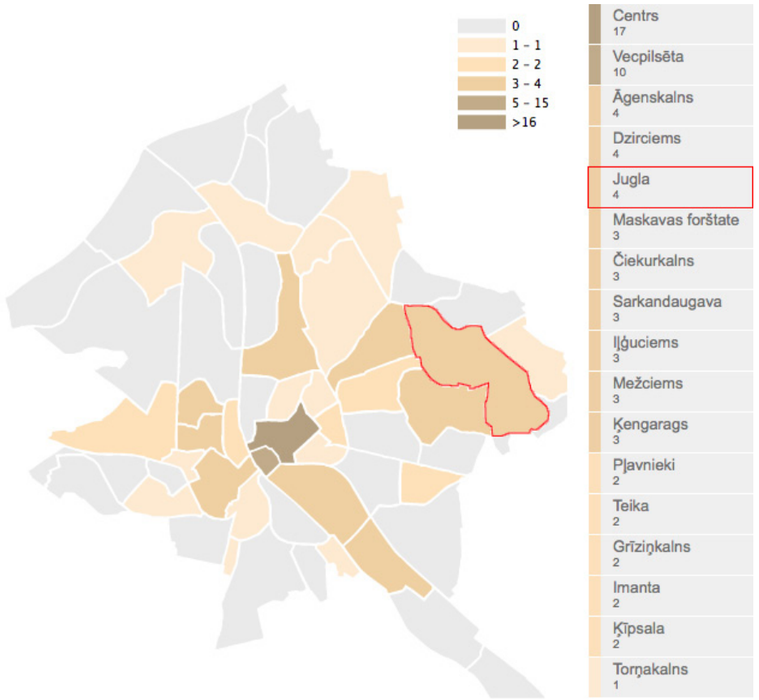
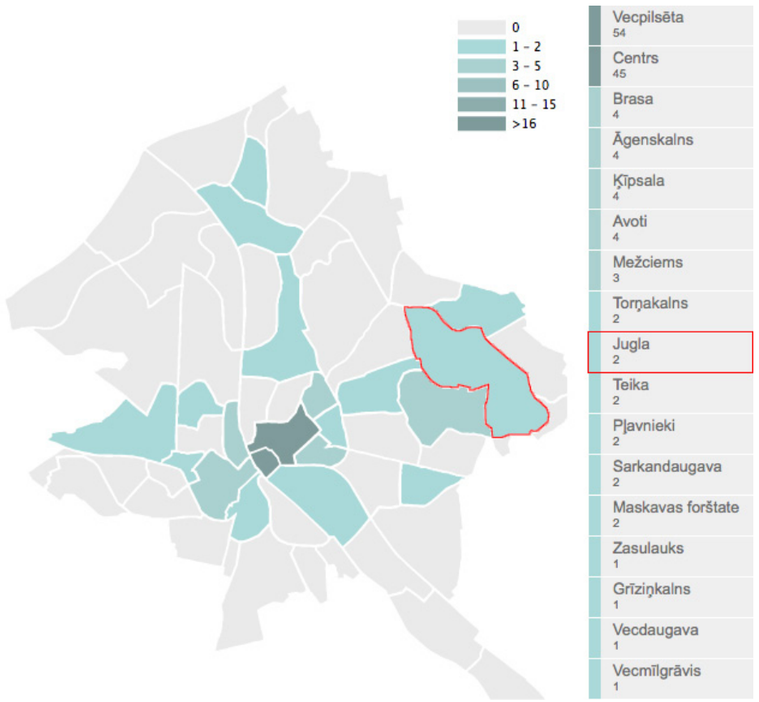
Dārzciems	4

Sport facilities



Libraries



Cultural facilities

According to Apkaimes project introduced by Riga City Council City Development Department, Jugla neighborhood has rather positive statistics, suggesting that it is a well-appreciated neighborhood with a lot of potential and opportunities for future development. The neighborhood has 8 preschool education institutions, 5 general and 4 other educational establishments, keeping Jugla in a strong position within top 10 neighborhoods of Riga. There is one University, four libraries, 8 sport facilities and 27 health care institutions. Culture is represented by 2 units and there are three social care facilities in the neighborhood. “It’s quite clear that Jugla is very well covered with the social infrastructure and the planning of it is very convenient for inhabitants but there is needed significant investments to humanize the planning and households for guarantee much higher life standards and accessibility both for guests and inhabitants of Jugla,” states JUGLA Neighborhood Baseline review.[2]

2 Riga City Council City Development Department project Neighbourhoods

Aaerial view of the building plot

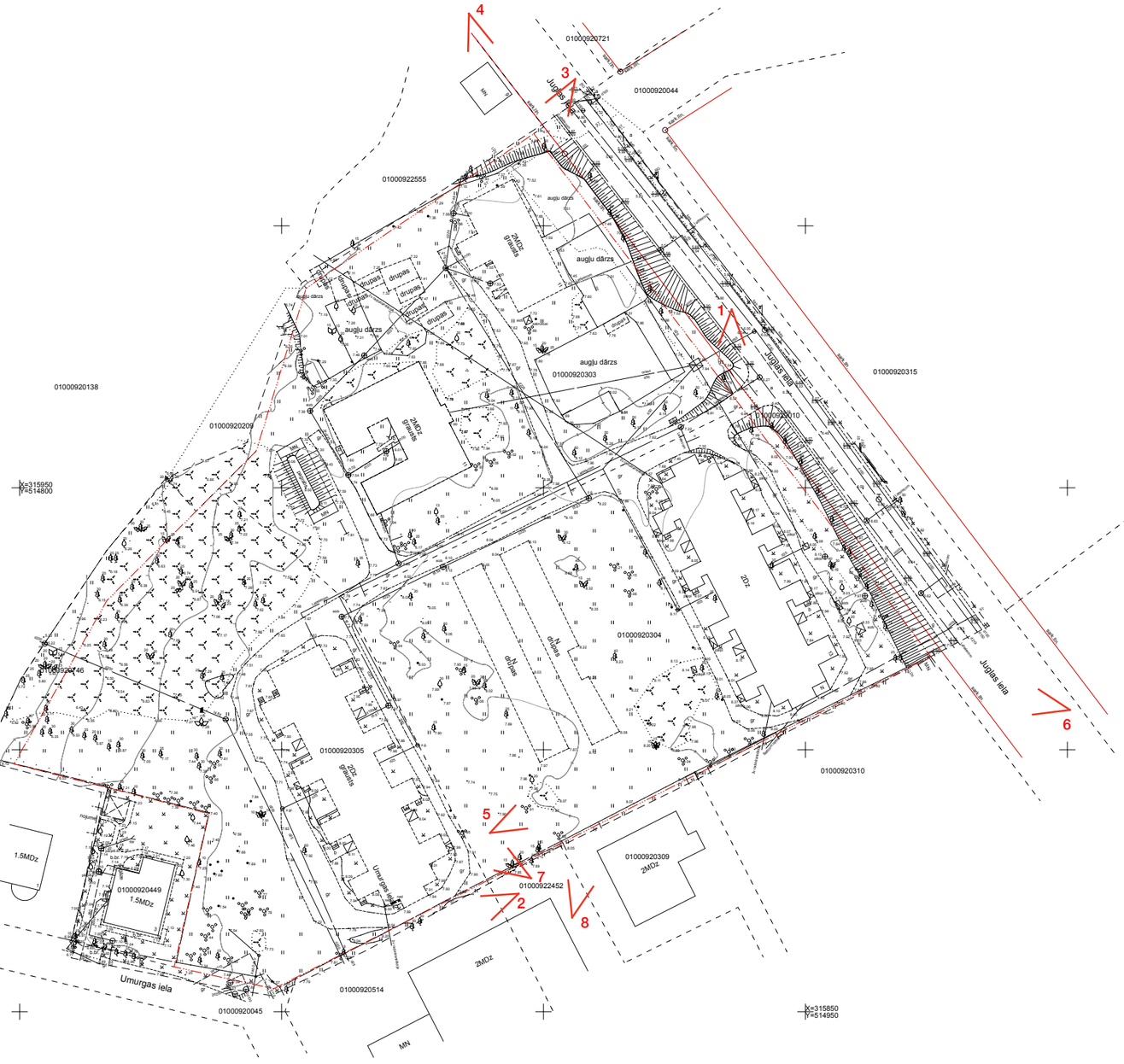
Ezermala estate, built in 2000

Estate “Premjers”, built in 2007

Vidzeme house, built in 2004

Building plot

The building plot of Jugla street 11, 13 is a territory consisting from three parcels – 01000920303, 01000920304 and 01000920305 located side by side with two of them bordering Juglas street and the third one being within close reach of Umugras street at the South West corner of territory. From the Southern side the border is partly shared with a Riga Secondary School Nº 16, built in 1964, and two other building lots marked as a mixed-use with a dwelling function territory. The last, North West border, is determined by protected natural landscape area where stream Gaiļupīte flows through connecting Jugla Lake with two smaller lakes Dambjapurvs ja Gaiļezers nearby. Right on the other side of stream Gaiļupīte a broad district of high-rise housing estate blocks from 60’s covers the ground with a Jewish secondary school and Kindergarten Nº 152 right at the heart of it. Similar development is present on the opposite side of Juglas street 11, 13 building plot towards South from Pales street, leaving substantial private house area in between. More recent structures are present on the opposite side of Juglas street where high-rise residential buildings such as Ezermala estate built in 2000, Vidzeme House built in 2004 and estate “Premjers” built in 2007 clearly presents persisting demand and interest in neighborhood. The strong presence of nature and nearby Jugla Lake, wide range of services, and convenient connections ensures a constant demand for dwelling in Jugla neighborhood.



Official site topography map 1/1000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View of building plot from Jugla street

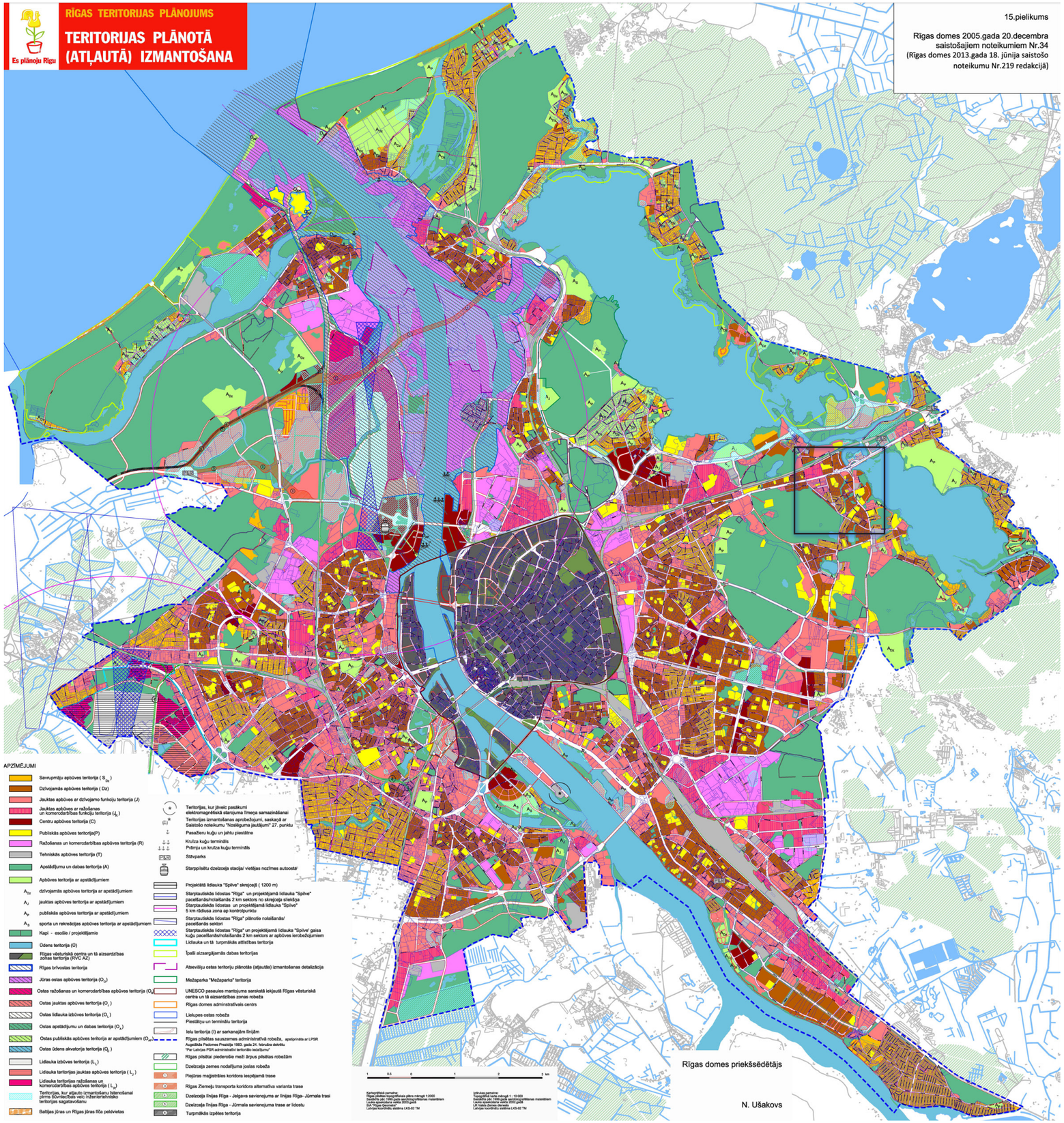
Jugla street green alley view towards building plot

The territory is currently quite isolated from its surroundings visually and physically. The surroundings as well as area in question are abundantly covered with trees that keep the current structures well hidden from a random passer-by. Physically the territory is detached by the natural landscape of riverbed at the North West edge of the land but on the street side there is a noticeable altitude difference, which is also apparent in the official topography map. Otherwise the territory is quite even, slowly descending towards riverbed particularly at the South West corner. The whole building plot is surrounded by fence to keep curious neighbors away from structures in critical condition.

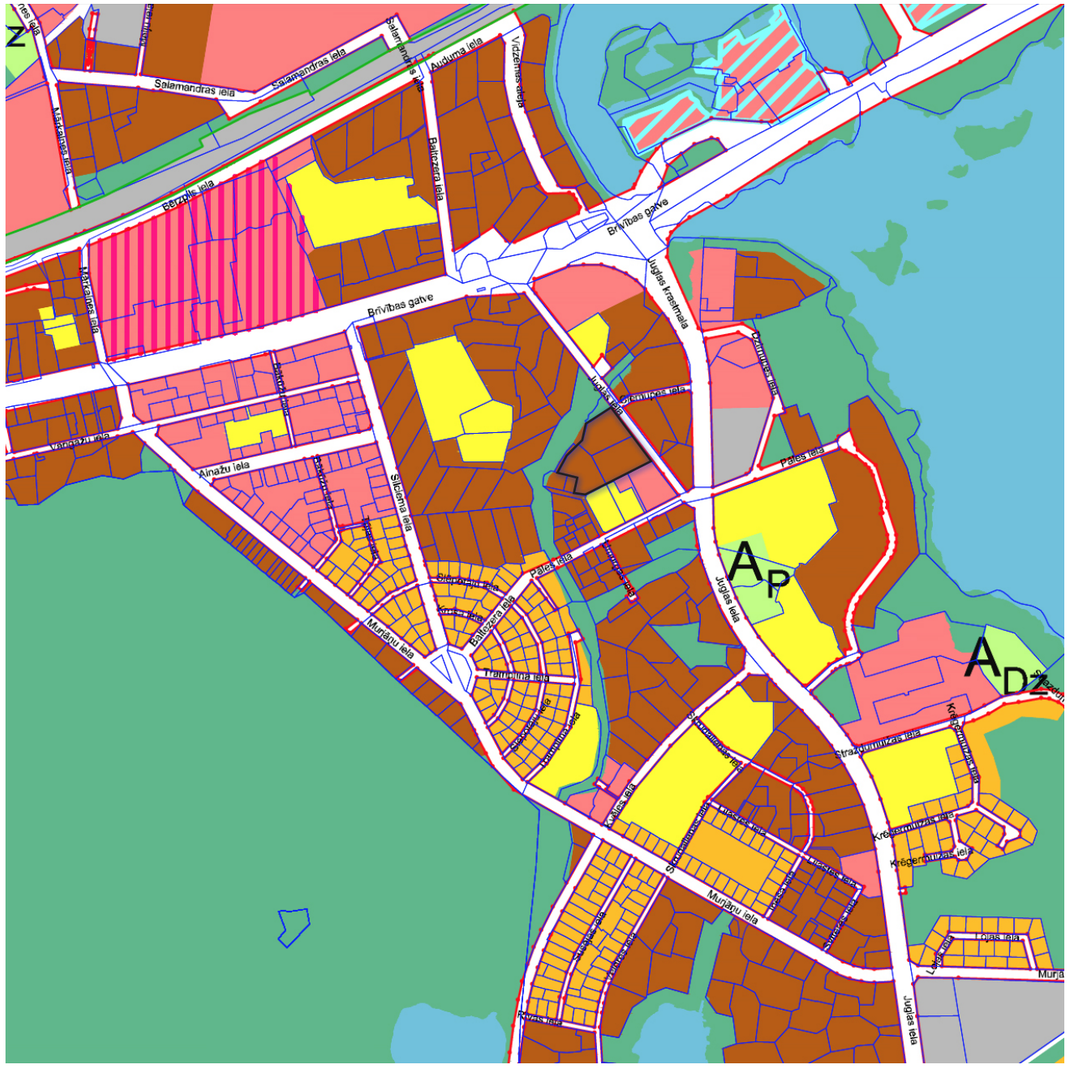
Juglas street passing by the building plot is nowadays a rather quiet and green alley with not much traffic due to new traffic junction finished in 2008 diverting the car flow from Juglas street to Juglas krastmala street before entering the Brivibas street / A2 national road. Still, the peaceful part of Juglas street is conveniently connected directly to Brivibas street where the traffic flows outwards from the city and to Juglas krastmala street at the other end, providing easy access to main roads for new inhabitants.

Currently four two-story residential buildings and several ruins of constructions that appear to have served as storages occupy the building plot. Two smaller units are plastered brick buildings and other two are made from wood. All four buildings are in a very poor and not in habitable condition. Three of them are marked as wrecks in official topography map issued by the city from which two are even marked as degrading and dangerous for environment in the official site of Riga City Council Property Department.[3] Therefore all current structures on the building plot have to be demolished from the site.

3 Riga CIty Council Property Department project Degrading Structures of Riga Environment



Attachment № 15
"The planned (permitted) use of territory"



Private house building territory (S_{Dz})

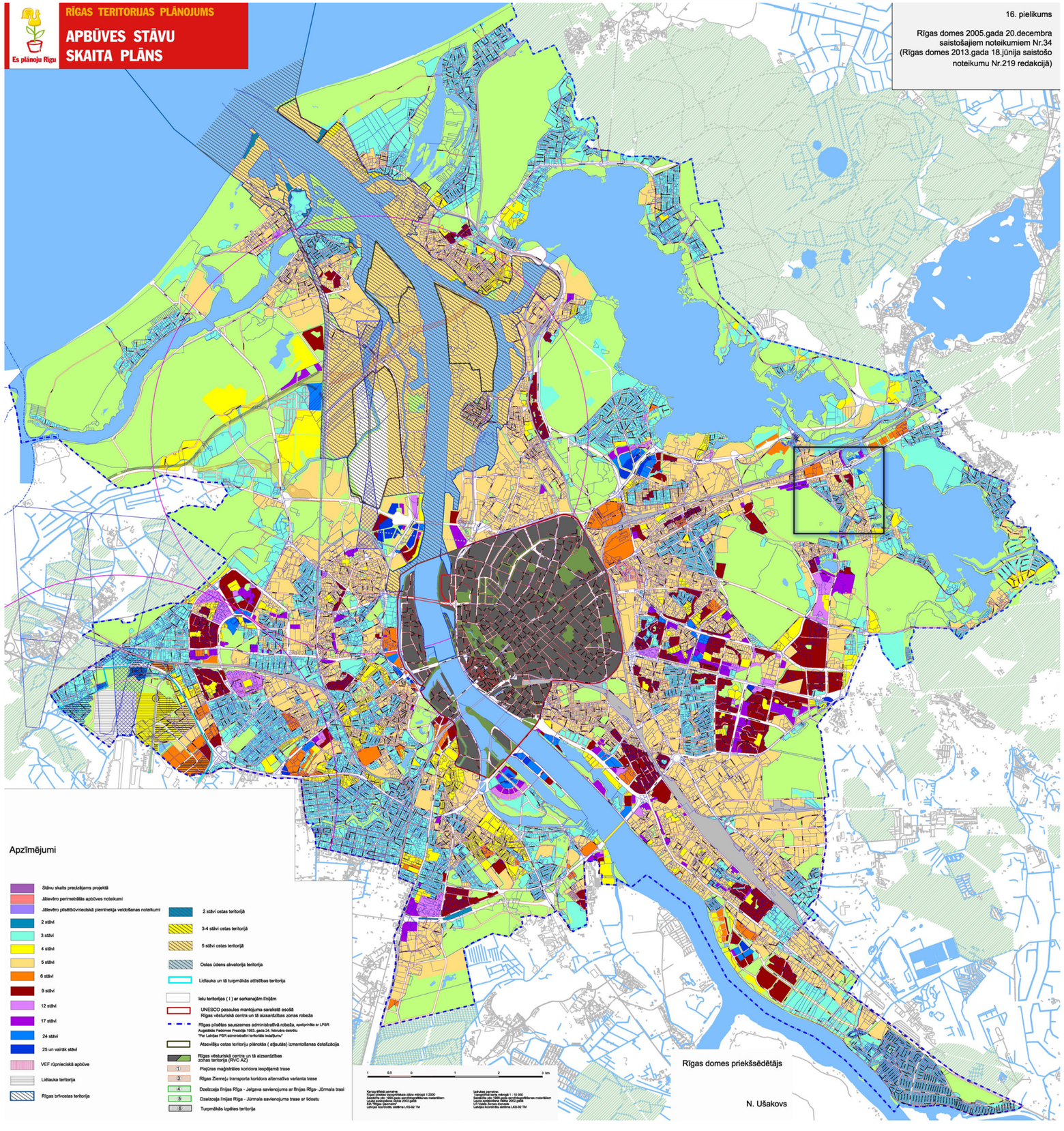
Multi-storey residential building territory (Dz)

Mixed use building territory with residential functions (J)

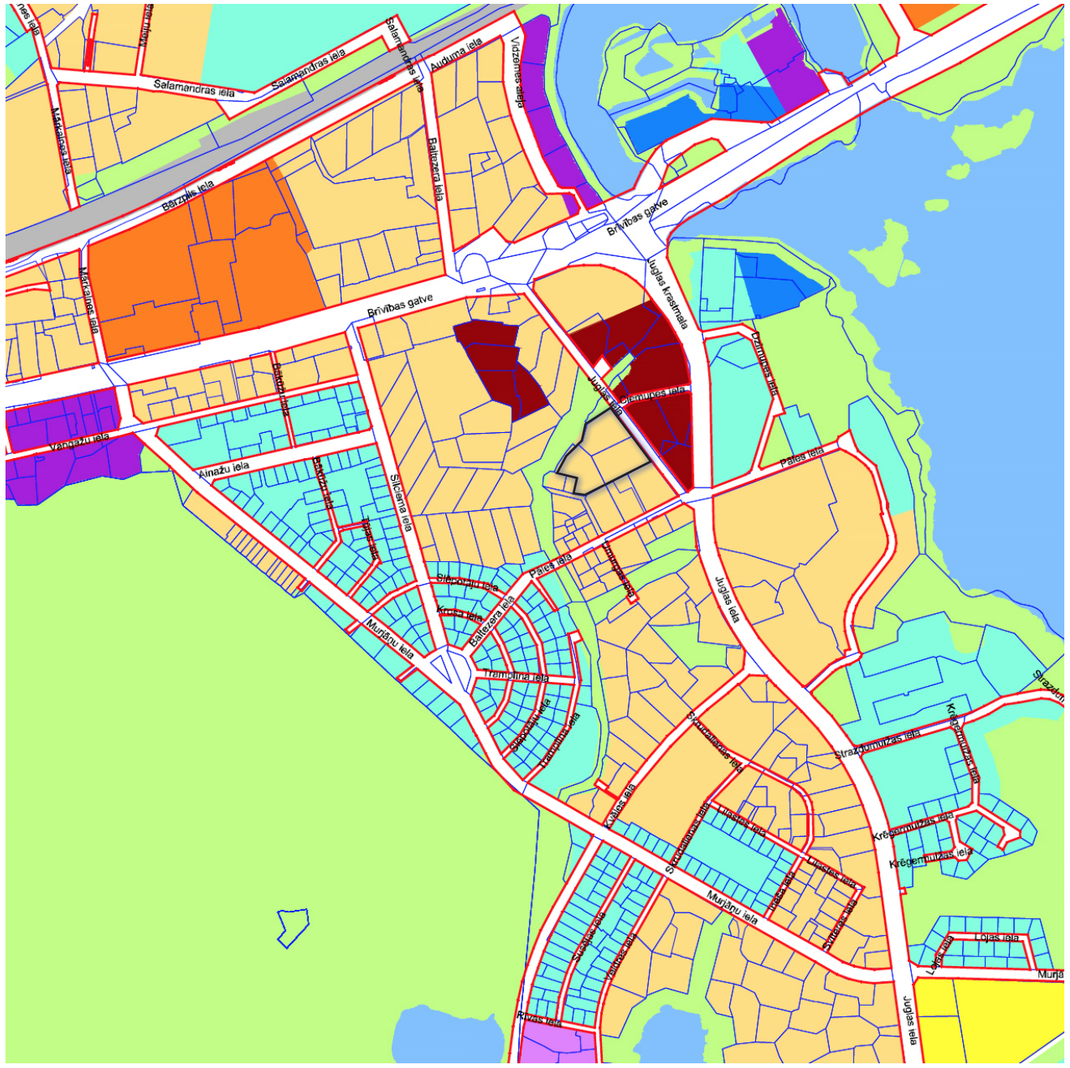
Public building territory (P)

Nature and greenery territory (A)

The binding conditions and regulations of particular building plot are presented in the graphical part of Riga territory use and building regulations. Attachment Nº 15 – “The planned (permitted) use of territory” defines that only multi-story structures of residential use are admissible, but attachment Nº 16 – “Construction floor number plan” states that buildings built on the plot have to have no more than five floors. However Riga City Building Construction Directorate is the authority that issues building permission and decides whether designed building is appropriate for particular location and environment or not. In special occasions if it aligns with principles of territorial planning and planned structures improve the architectonical image of the city, public domain and achieve the earlier mentioned results, Riga City Building Construction Directorate can allow to bypass the regulations to extent defined in Regulations for the Planning, Use and Building of Riga Territory.



Attachment Nº 16
“Construction floor number plan”



- 2 floors
- 3 floors
- 4 floors
- 5 floors
- 6 floors
- 9 floors
- 12 floors
- 17 floors
- 24 floors
- 25 and more floors

Regulations in Latvia

Design regulations

The general requirements for spatial development planning, land use and building of the local level are defined in Riga City Council Regulations Nº 34 (Riga City Council decision Nº 749 on 20.12.2005) Regulations for the Planning, Use and Building of Riga Territory with supplementary graphical attachments Nº 15., 16., 17., 19. and 20.[4] The functional zone assigned to particular building plot requires that the Cabinet Regulations Nº 340 (Adopted 30 June 2015) Regulations about Latvia Building standards LBN 211-15 'Residential Buildings' are followed. According to these regulations the main parameters guiding the building of territory are building intensity, the indicator of vacant (green) territory and building density. These building technical parameters are defined according to corresponding designated functional zone and planned amount of floors in structures being designed.

Building intensity is a proportion of the sum of the above-ground floor area of buildings and the area of the land unit. Building intensity (I) is calculated in percentage using the following formula:

$$I = \frac{S}{Z} \times 100\ \%, \text{ where}$$

S – a sum of the above-ground floor area of all buildings (m^2);
Z – actual entire land unit area (m^2).

The indicator of vacant (green) territory is a proportion of the vacant territory and the sum of all a sum of the above-ground floor area of all buildings. The indicator of vacant (green) territory (B) is calculated in percentages using the following formula:

$$B = \frac{Z - L_1 - L_2 + L_3 \times K}{S} \times 100\ \%, \text{ where}$$

Z – actual entire land unit area (m^2);
L1- sum of the building areas of all buildings (m^2);
L2- sum of area occupied by access roads and parking lots above ground (m^2);
L3- area than can be partly accounted for vacant territory according to point 259 in regulations (m^2);
K- the factor of L3 according to point 259 in regulations
S – a sum of the above-ground floor area of all buildings (m^2);

Building density is a proportion of the built-up territory (sum of the building area of all buildings) to the area of the land unit. Building density (A) is calculated in percent using the following formula:

$$A = \frac{L}{Z} \times 100\ \%, \text{ where}$$

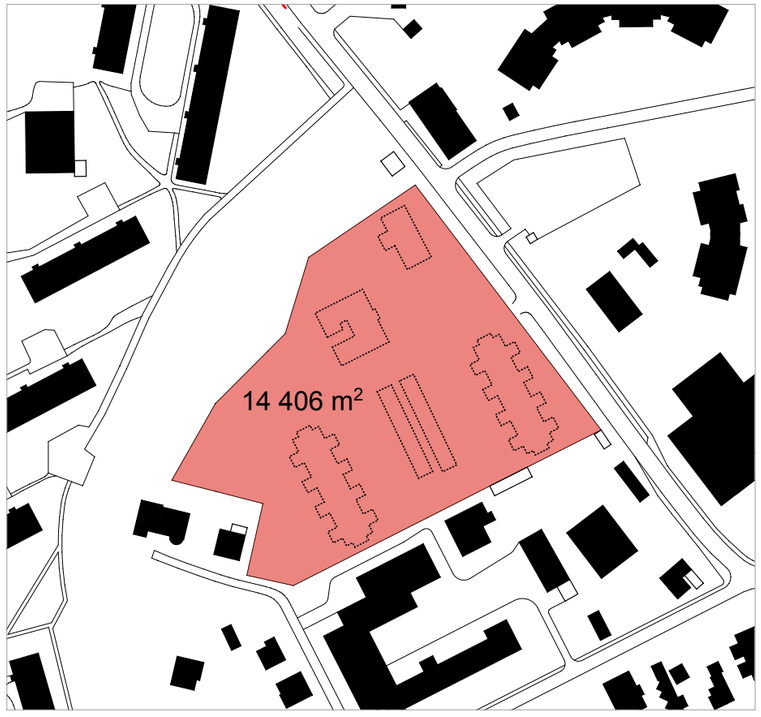
L – sum of the building areas of all buildings (m^2);
Z – actual entire land unit area (m^2).

4 Riga City Council City Development Department

As it was noticed earlier, these building technical parameters are related to number of floors for planned structures. The supplementary graphical attachment of Regulations for the Planning, Use and Building of Riga Territory Nº 16 defines the maximal amount of floors for designed building in particular location, but the admissible maximum building intensity and minimal vacant territory have to be crosschecked from regulations according to the ones of design solution and following charts:

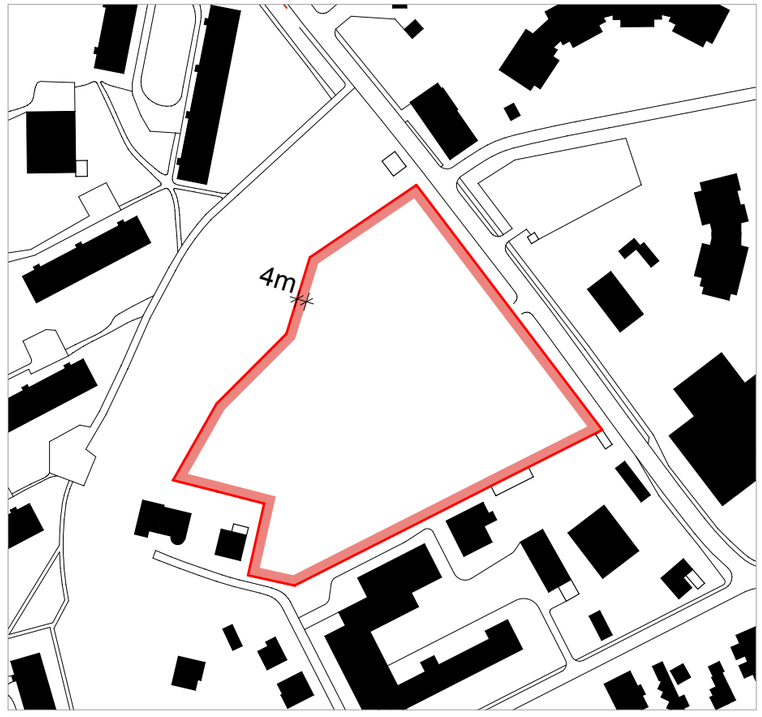
The maximal building intensity of building plot is:
70% 2 and less storeys
100% 3 storeys
120% 4 storeys
140% 5 storeys
160% 6 storeys
220% 7 - 9 storeys

The minimal vacant (green) territory
of building plot is:
60% 2 and less storeys
50% 3 storeys
40% 4 storeys
35% 5 storeys
30% 6 storeys
25% 7 - 9 storeys



Building plot with current structures

Distance from the red line



Distance from the border

When considering the location of planned structure within the borders of land unit in question, there isn't a specific city plan illustrating the explicit borders for structures to be arranged along. Still there are several conditions that determines how the buildings can be situated in relation to border and surrounding buildings. One of them is building setback line that in accordance to the Protection Zone Law is a line, which determines the distance from red line to the buildings. It is in the spatial planning specified line of plot, starting from which, in the direction from street to the depth of plot, the main buildings may be located.[5] If the building setback line is not established in particular land unit the minimal building setback line is defined as a certain distance from the protected zone reserved for the street and marked in the map with the red line in relation to the category of particular street. Jugla street is category E street meaning that the building setback line have to be at least 3m from the red line.

The permitted minimum distance between structures is determined in conformity with the fire safety requirements, regulations in the field of insolation and other regulations, but for the multi-story residential buildings it is not smaller than:

15m – between the longest elevations of 2 – 3 floor buildings;
20m – between the longest elevations of buildings with 4 or more floors;
10m – between the shortest elevations of buildings if there are windows of living room located and between the shortest elevation and longest elevation of other building.

The minimum distance of the designed building from the border of building plot is 4m if there are windows in the elevation facing this border.

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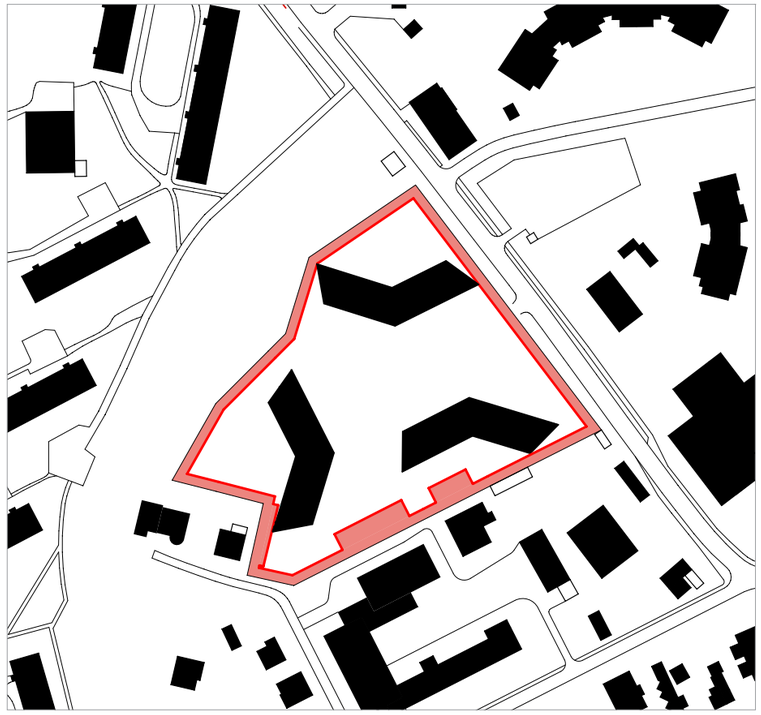
Protected area in front of existing buildings



Actual building plot

Minimum required distance from the elevations of new structures

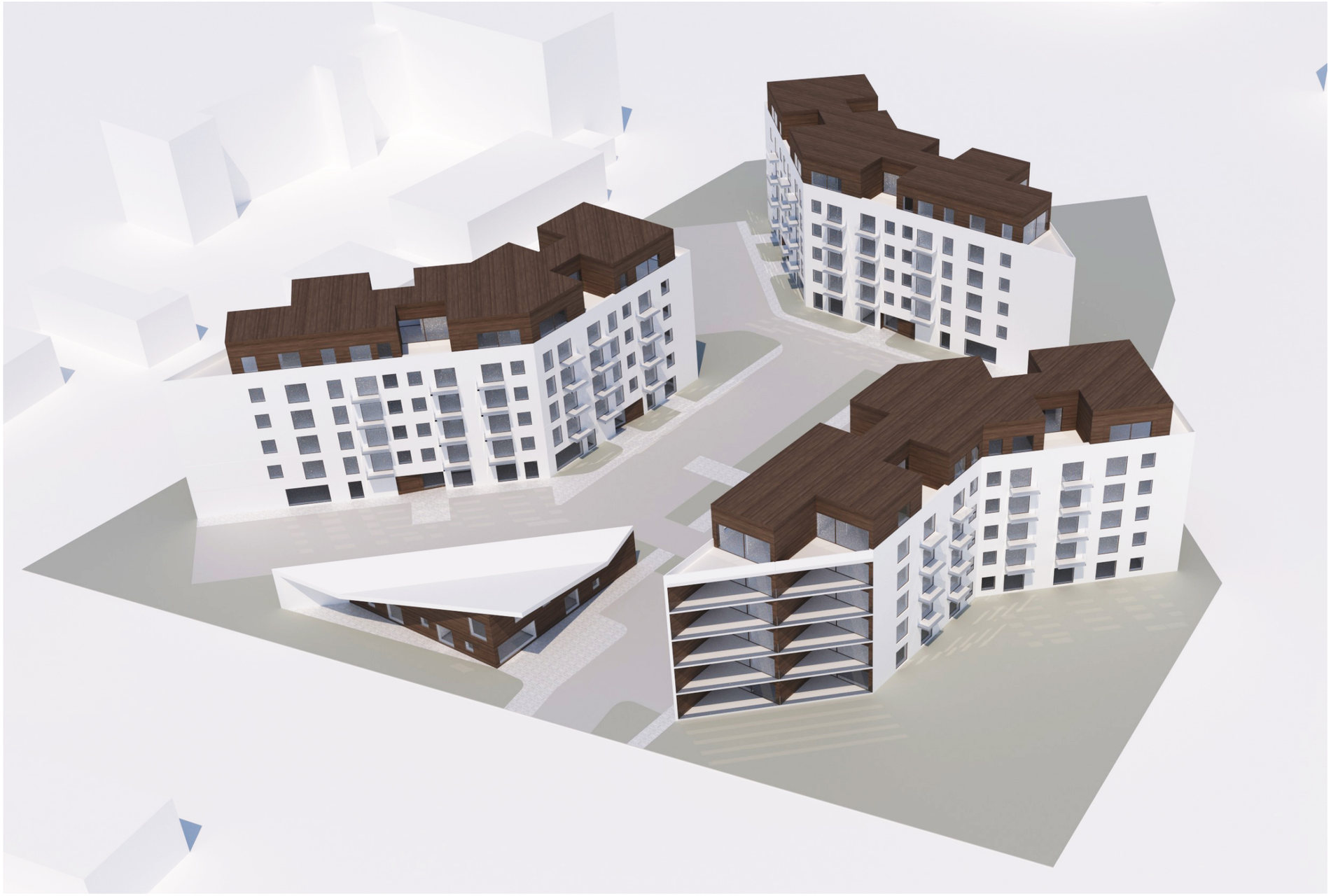
Accessibility

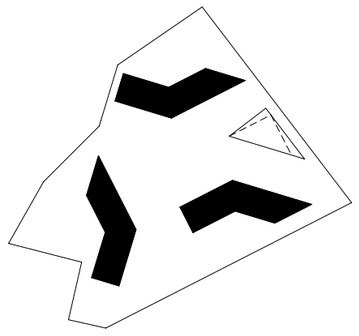
The regulations for the Planning, Use and Building of Riga Territory as well as Regulations about Latvia Building standards LBN 211-15 'Residential Buildings' requires that in multi-story residential buildings the following demands for accessibility are reached:

- the access to the first floor of building or elevator have to be secured;
- the main entrance of the building and access to the each apartment have to be designed without threshold or steps, using a ramp of 1,2m width and inclination not higher than 1:20 if needed;
- draught lobby have to be designed at least 1,5m deep and 2,2m wide.

The requirement for minimal width of corridor and minimal dimensions of elevator cabins as well as certain rooms have to be adopted only in case that the building design includes apartments that are esspecial meant for families where some of the members have movement disabilities.

Project background





As the bases for this research serves a draft proposal developed as part of study commissioned by the developing company Arcers (Arčers). They have had acquired the land in Jugla and at the time where looking for business opportunities related to this property. On the basis of Riga territory use and building regulations for particular area it was agreed to examine the possibility of constructing the group of apartment buildings and a separate edifice for public or private services. Client was confident that a small kindergarten would generate most return regardless of the already well-developed social infrastructure in the neighborhood. In addition, it was requested to consider a possibility to design six- or even seven-story buildings, regardless of restrictions to five storeys specified in building regulations.
The resident parking was presented as a typical yard parking solutions, which is unfortunately very common in Riga suburbs.

The reason for this study, commissioned by Arcers, progressing into Master thesis was the urge to improve upon the early concept and continue to develop the design into more refined and elegant solution. The scale and proportions of structures were reconsidered and solutions of architectural expressions studied more thoroughly. The general problem of inner courtyard over-night parking lots and comfort of shared public domain, as well as improvements regarding planning, were addressed. Another argument considering further study was the need for independent structure to accommodate kindergarten presented in proposal for developing company, considering the available public services in neighborhood and the actual possibility to locate it within the borders of the territory.

Design

Site plan 1/1000

Perspective view arriving from Juglas street

The design for Jugla street 11, 13 building plot attempts to create a modest yet unique and high-grade built environment that would provide new residents with modern and prime quality dwelling space. The composition of three visually similar five-story apartment buildings, which are evenly distributed along the territory, fits naturally within the green environment and doesn't compete with complex and disorganized surroundings. The buildings are situated in each corner of nearly triangular building plot forming an enclosed and intimate courtyard with a small amphitheater in the 'heart' of it that plays an important role in the courtyard domain. The steps conveniently orientated towards South West works as multifunctional platform that naturally attracts and encourages the residents for spontaneous interaction and different outdoor activities, while also connecting courtyard to the parking level. The buildings themselves are designed as apartment blocks with two separate staircases each servicing six apartments on a typical floor. The basic geometry of the floor plan is rectangular but the volume is slightly folded in the middle manipulating the visual impression of building's length in reality and creating a spatially unique courtyard and backyards. Furthermore, the folded shape is the key for securing the new apartments with long and uninterrupted views.

Aerial view from West

The ingenious massing of the apartment block allows the volume to be multiplied without concern of forming a dull and spiritless ensemble. The volumes interact with each other in different angles creating both unique and rich shared public space as well as enclosed private backyard. Together buildings establish strong yet composed and pleasant milieu. There is also an economical advantage in constructing three similar buildings, which in return means that a lower selling price can be offered to attract tenants from diverse social groups.

Apparent altitude difference between the land unit and Jugla street appears to be a human made alteration executed by the time when current buildings were built. The elevation causes an undesired seclusion and it seems both artificial and irrelevant since there aren't any similar land manipulations present in adjacent territories. In this design the land is leveled out to follow the slightly sloping Jugla street and to unite once isolated area with its surroundings. The newly developed territory will therefore open up to the green Jugla alley improving the safety and comfort of public space as well as providing easy and convenient access to dwellers or visitors of Jugla street 11, 13 territory. For more satisfactory integration, a new pedestrian bridge over Gaiļupīte stream is proposed as well as pedestrian paths connecting the inhabitants to Umurgas street.

Building technical parameters for this development are following:

- Actual entire land unit area (Z) 14 406 m^2
- Sum of the all above-ground story area of all buildings (S) 13 137 m^2
- Sum of the building areas of all buildings (L) 3 565 m^2
- Sum of area occupied by access roads and parking lots above ground (L_2) 1 203 m^2

Using these parameters the Building intensity (I), The indicator of vacant (green) territory (B) and Building density (A) can be calculated.

$$I = \frac{S}{Z} x100 = \frac{13137}{14406} x100 = 91.2\%$$

$$B = \frac{Z-L-L_2}{S} x100 = \frac{14406-3565-1203}{13137} x100 = 73.4\%$$

$$A = \frac{L}{Z} x100 = \frac{3565}{14406} x100 = 24.7\%$$

Maximum building intensity (I) of building plot with five story buildings is 140%, but minimal vacant (green) territory (B) 35%.

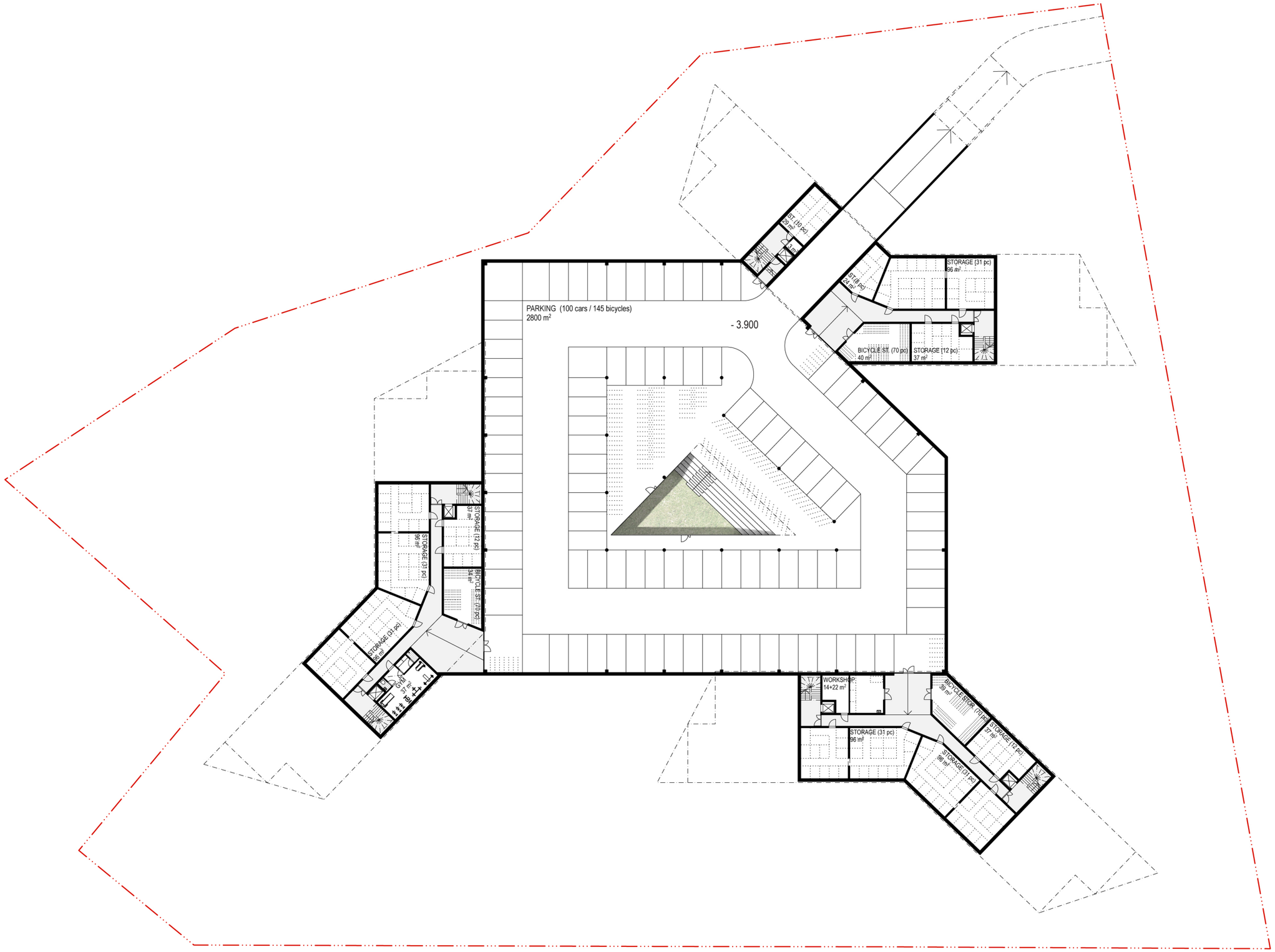
Perspective view arriving from Umugras street

Architecture

The buildings are designed as a modern interpretation of an typicla Soviet-era high-rise apartment block with a strong emphasis on the quality for both living conditions and public domain. A careful planning, orientation and increased floor height to 3.4m are basis for securing the first target. The later one greatly relies on the quality of enclosing structures, and therefore special attention is paid to the building materials. A light site-cast concrete is chosen as a primary material for elevations due to its durability, aging conditions and aesthetics. To compliment that, a contrasting, darker material needs to be assigned. Dark bronze sheets are perfect fit for achieving visually unite composition of sculptural units on the upper – 5th floor. The top level walls and roof are entirely clad in bronze as are the surrounding walls of dwelling terraces on both ends of block.
The massing is simple with some particularities - the fold in the middle of structure, faceted terraces at the both ends of volume and distinct upper floor gives the building a strong visual identity and character. The upper floor is designed as a group of sculptural units clad in different material playing with the perception of the size and height of the buildings.

Access

The main access to the territory is arranged as previously from the Jugla street serving both the residents and operative transport. Short term parking for few cars is established in close reach of building entrances while overnight parking is situated in underground parking with vehicle access through entry ramp from Jugla street. The access is located at the junction of Jugla and Ciemupe street, to form a clear intersection with easy and well functioning traffic flow.



Underground parking / basement plan 1/500

Aerial view from East

Underground parking

Even though the underground parking is not commonly used in association with apartment buildings in suburb areas, the examples of nearby development aiming for reputation of higher standard environment for living encourage the use of chosen solution. Two out of four most recent developments just on the opposite side of the Jugla street have an underground parking. It is obvious that the benefits from placing the over-night parking underground are easily worth the costs. In this particular case the intension was not only to remove the cars from courtyard but also to create a well functioning parking with comfort and experience not that common in underground car parks. The key element for this is a natural light and nature! Small amphitheater with garden of roughly 75 m^2 is located right in the middle of space delivering plenty of daylight and some greenery while connecting the underground level to courtyard. The parking space itself is designed as a space located centrally between all three buildings, connecting them underground so that parking can be accessed indoors directly from your building. There is space for 100 cars and 145 bicycles underground.

Thirteen more cars can be parked within courtyard territory. Additional space for bicycles can be found in close range of building entrances.

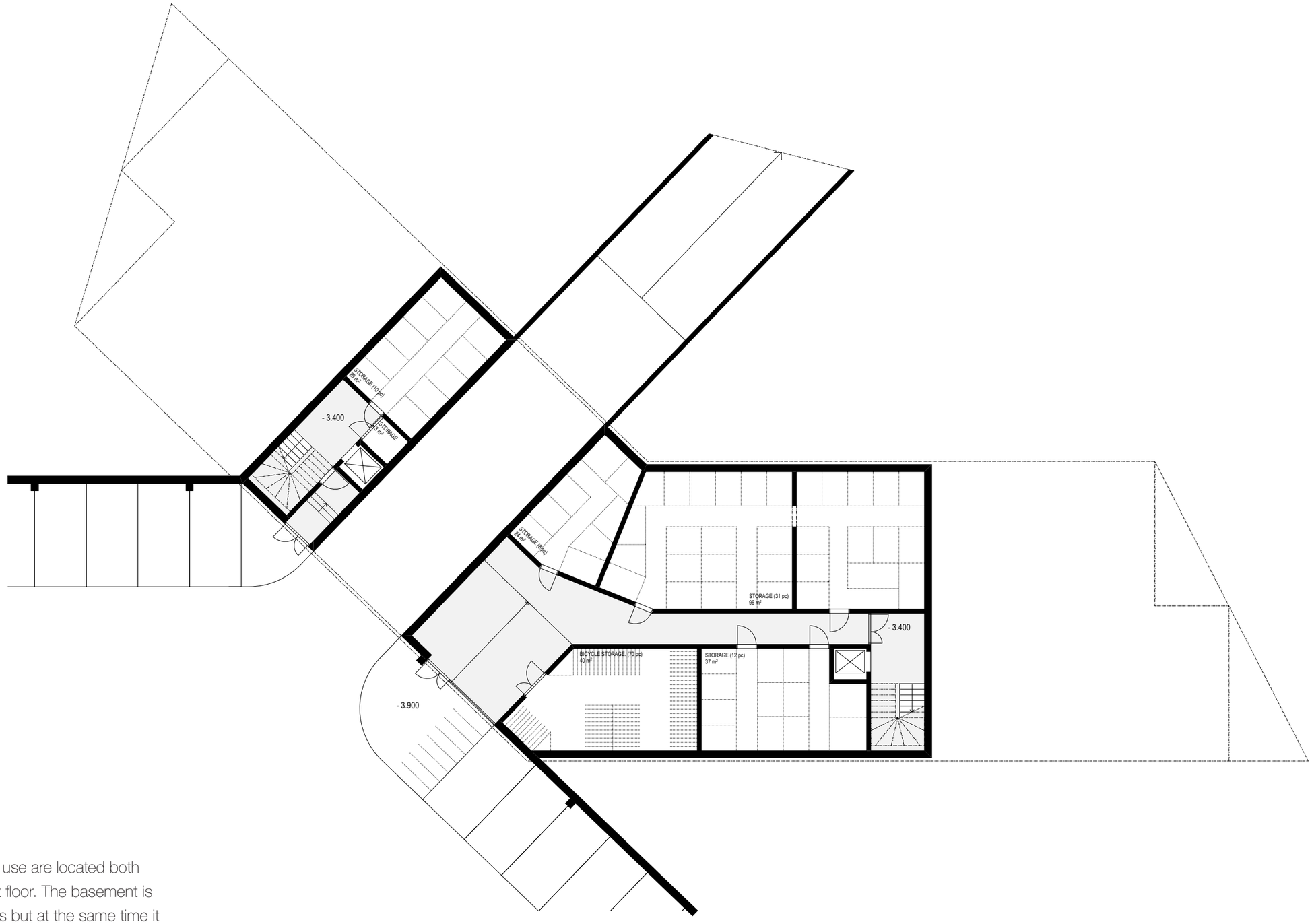
According to regulations every other apartment has to be provided with one parking space and every apartment has to be provided with one parking space for bicycle. Additionally, every 100 apartments have to be provided with one extra parking lot for car and every 30 apartments with additional 2 parking spaces for bicycle. Since there are 156 apartments in total it means that a minimum amount of parking lots are:

156 / 2 + 156 / 100 x 1 = 78 + 1 = 79

The desirable amount, of course, being 157 parking spaces. The minimum amount for bicycle parking would be accordingly:

156 x 1 + 156 / 30 x 2 = 156 + 10 = 166

Therefore one can conclude that the minimum requirements are satisfied even though the desired end result where every apartment would have a parking lot is not reached with this solution.



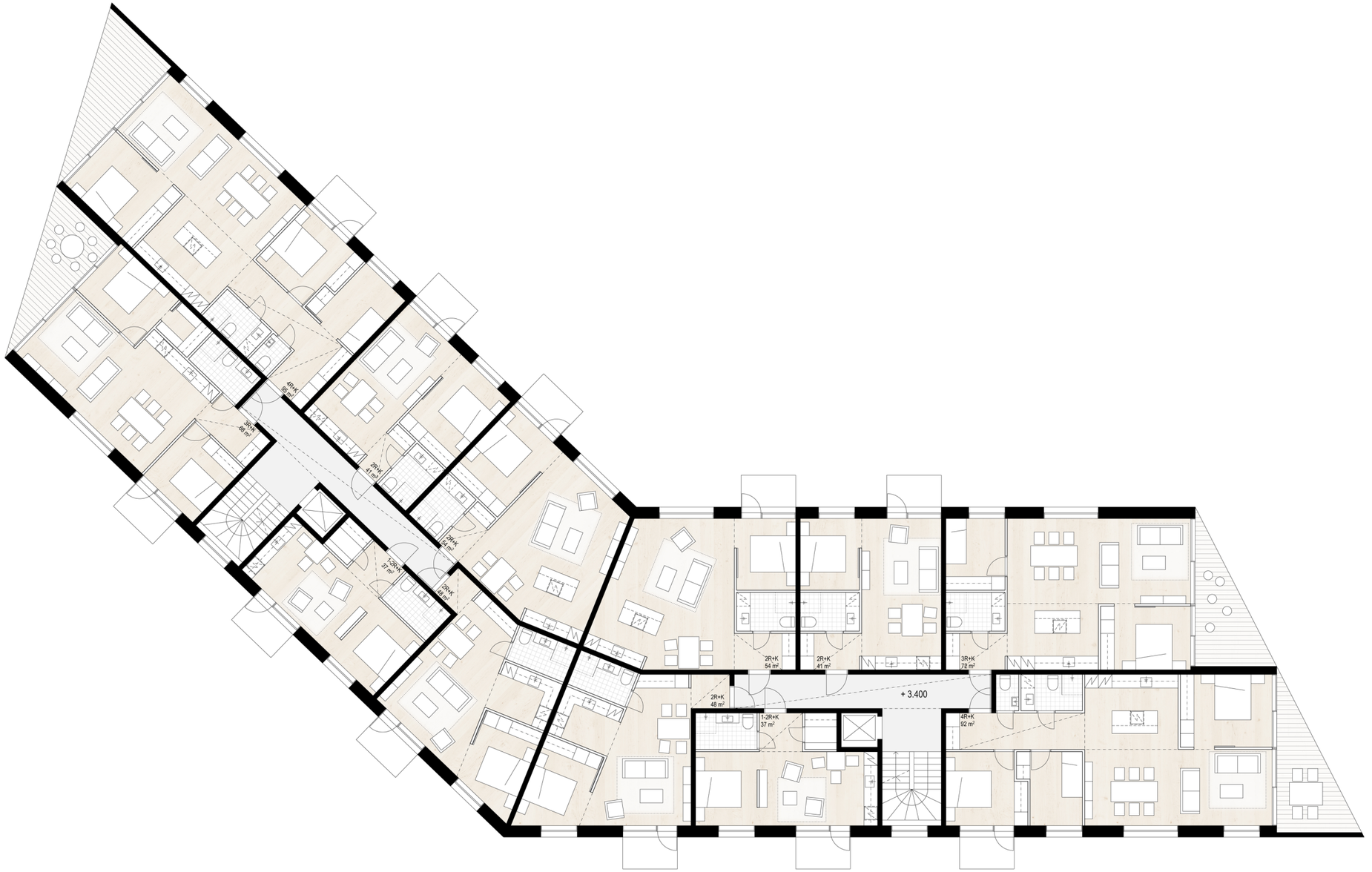
Shared space

Spaces for common tenant use are located both in basement and on the first floor. The basement is mainly dedicated to storages but at the same time it is also a main access route straight to underground parking without leaving the building. In the basement of every building there is a space for dedicated apartment storages as well as bicycle storage.
In addition there is a workshop and a small gym each located in one of the buildings for everyone to share.

Basement plan 1/200

First floor on the contrary is only partly occupied by common space, located on the entrance side of building. Space devoted to equipment storage and utility room is located in close reach of every entrance hall. The multifunctional space equipped with bathroom, small storage and kitchen can be leased out or used by community. If needed, this space can be accessed directly from outside.

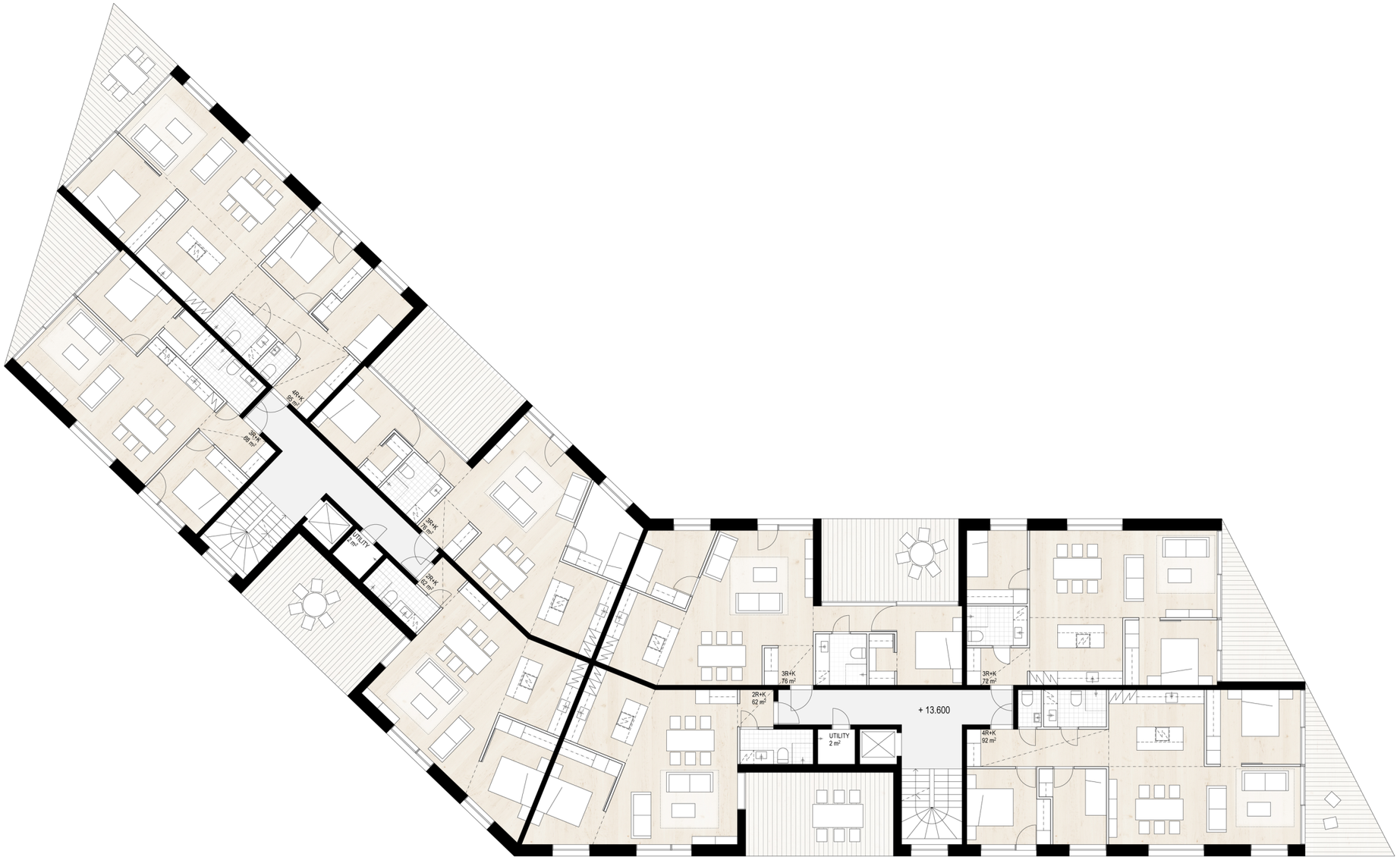
1. floor plan 1/200



Floor plan

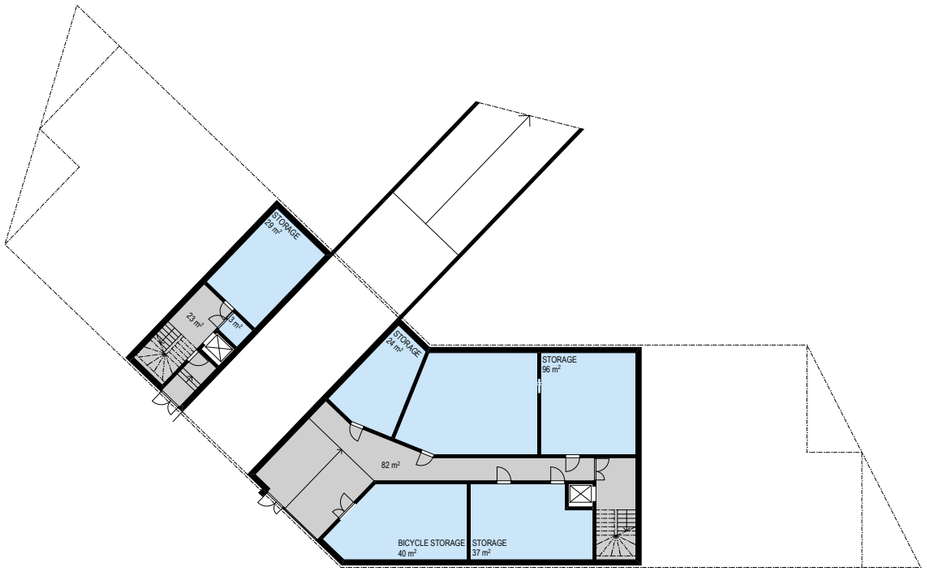
The typical floor plan is mirrored of two almost identical groups of flats with the exception of the three and four room apartments at both ends of the block. Two independent staircases each equipped with elevator serves six apartments on each floor. Mild adjustments are made to the first floor in order to accommodate essential common spaces and to the upper – fifth floor for more spacious and luxury apartments with better views from the top spot.

2. - 4. floor plan 1/200



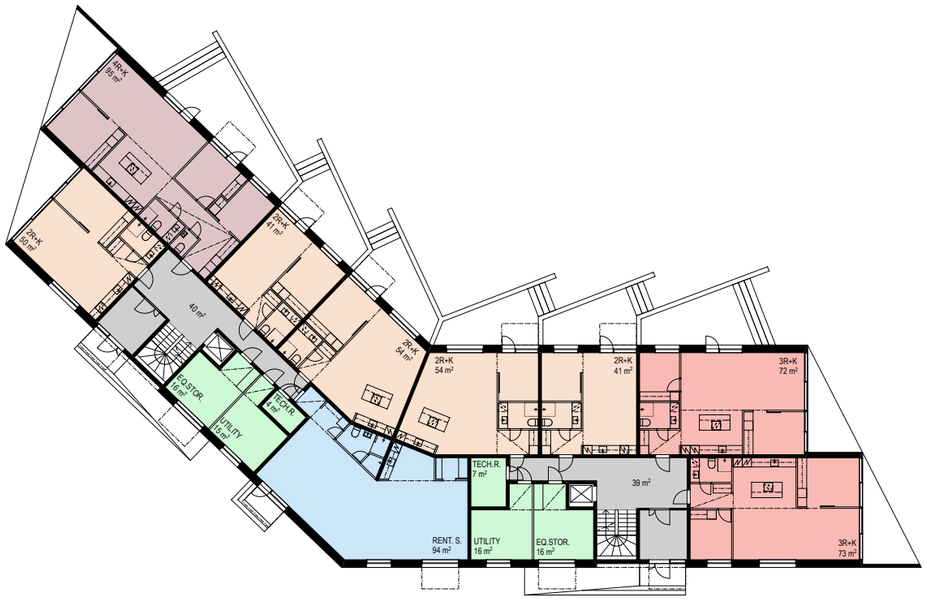
The distribution of dwelling typology follows the logic of the building. Larger - three and four room apartments are located and the ends of the block equipped with large terraces and views opening into two directions. One and two room apartments are located in the central section of the block opening only in one direction but still equipped with balcony. The apartments on fifth floor are slightly bigger and each has its own large terrace. There are no smaller units in the top floor to make the space for generous terraces and to allow the increase of two smaller apartments to be of more prominent size.

5. floor plan 1/200



Basement

Lobby	x 2	= 105 m²
Tech. space	x 7	= 229 m²
Together		= 334 m²

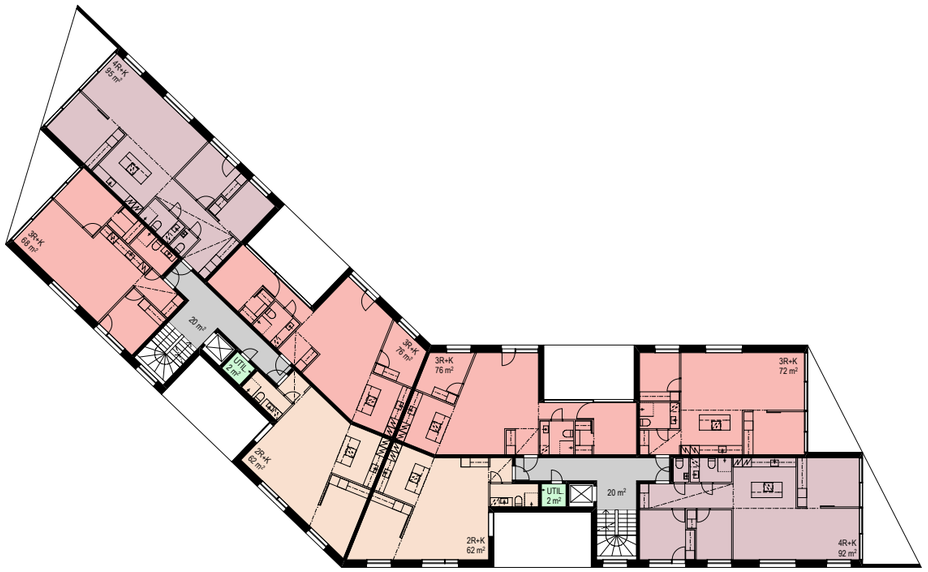


1. Floor

2R + K	41 m²	x 2	= 82 m²
2R + K	50 m²	x 1	= 50 m²
2R + K	54 m²	x 2	= 108 m²
3R + K	72 m²	x 1	= 72 m²
3R + K	73 m²	x 1	= 73 m²
4R + K	95 m²	x 1	= 95 m²
			= 8 ap. / 480 m²
Rentable space		x 1	= 94 m²
Lobby		x 2	= 79 m²
Tech. space		x 6	= 74 m²
Together			= 727 m²

2. - 4. Floor

1-2R + K	37 m²	x 2	= 74 m²
2R + K	41 m²	x 2	= 82 m²
2R + K	48 m²	x 2	= 96 m²
2R + K	54 m²	x 2	= 108 m²
3R + K	68 m²	x 1	= 68 m²
3R + K	72 m²	x 1	= 72 m²
4R + K	92 m²	x 1	= 92 m²
4R + K	95 m²	x 1	= 95 m²
		= 12 ap. / 687 m²	
Lobby		x 2	= 44 m²
Together			= 731 m²

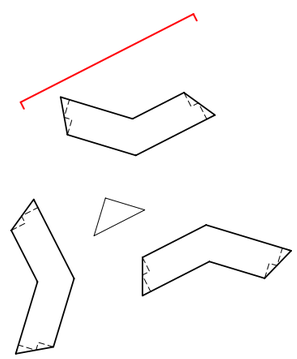


5. Floor

2R + K	62 m²	x 2	= 124 m²
3R + K	68 m²	x 1	= 68 m²
3R + K	72 m²	x 1	= 72 m²
3R + K	76 m²	x 2	= 152 m²
4R + K	92 m²	x 1	= 92 m²
4R + K	95 m²	x 1	= 95 m²
		= 8 ap. / 603 m²	
Lobby		x 2	= 40 m²
Tech. space		x 2	= 4 m²
Together			= 647 m²
Totall area in building:			**= 3 901 m²**

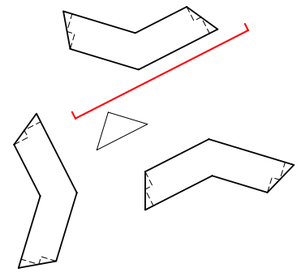
Appartments in building:

1-2R + K	6 pcs
2R + K	25 pcs
3R + K	12 pcs
4R + K	9 pcs
	= 52 pcs



Elevation 1/200

1. Site cast concrete, white
2. Bronze massive sheets
3. Glass
4. Local massive sandstone



Elevation 1/200

1. Site cast concrete, white
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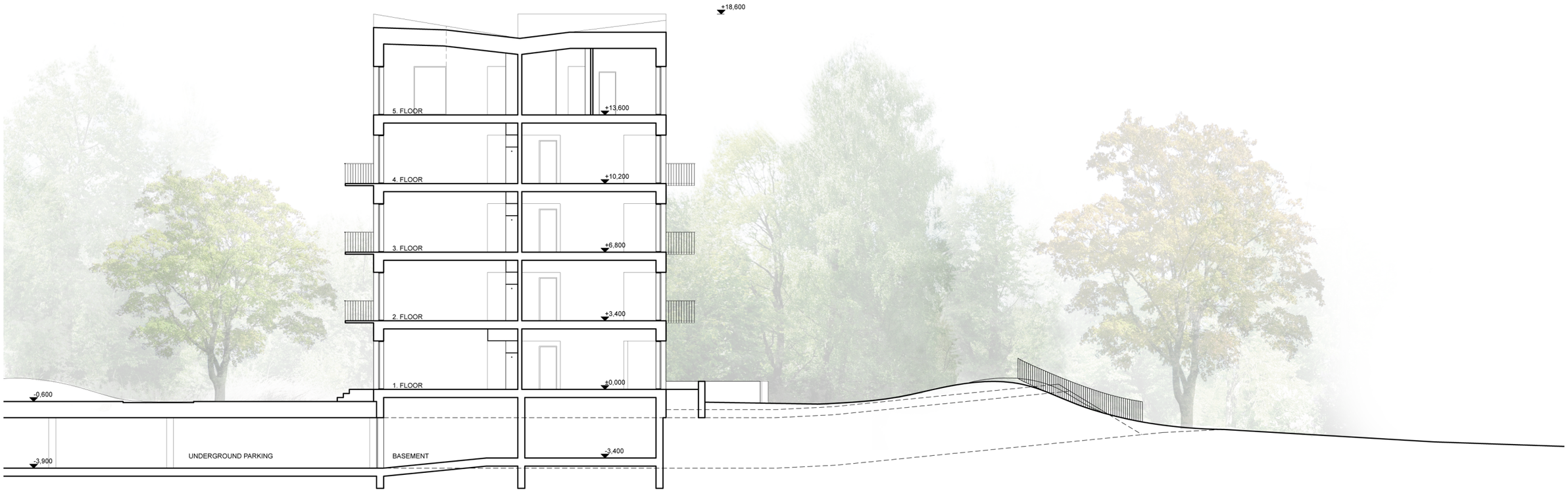
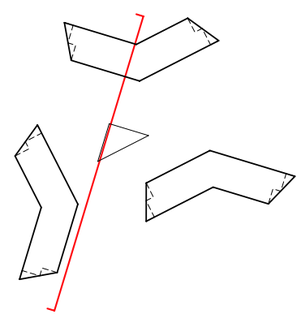
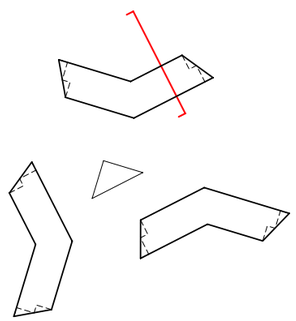
Elevation 1/200

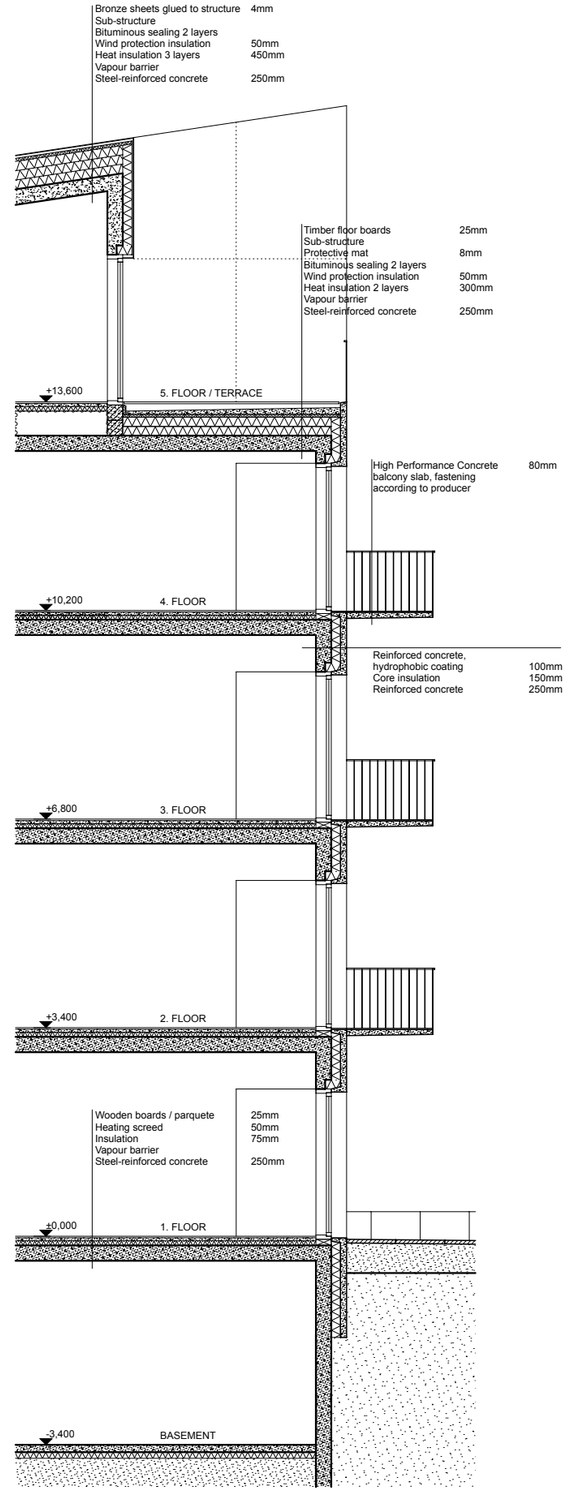




Section 1/200



Section 1/200



Section detail 1/100

Conclusions

A process of designing an apartment block in Riga, Latvia was of personal interest to me, because of my origins and the early experience acquired working in local architecture firm during study years in Riga. Training in both Finnish and Latvian Architecture schools made it possible to get a glimpse on the differences between the building and designing culture in both countries however it became clear that a more serious and thorough study must be concluded to fully understand the differences between building regulations in both countries.

It was especially challenging to address the problem of inner courtyard over-night parking lot and the necessity for parking space in high-rise apartment block dwelling area. The research conducted during this study revealed that a general vision and recommendations by the City authorities on how to improve this situation in Riga suburbs are absent. It is my strong belief that there is a pressing need to address this problem through general study and it would benefit both the city and the private investor in future.

Due to the lack of time resources the study of outdoor lightning was left out from this research even though I am confident that it should be an integrated part of the design. Appropriate lighting compliments architectural features during dark hours as well as plays an essential role in creating a high quality and comfortable built environment.

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IMAGES

Page	Source
6	Bing Maps
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11	http://www.rdpad.lv/wp-content/uploads/2014/11/9.2.3._trasporta_infrastukturas_attistiba_m.pdf
12	Images of Strazdmuiza park near Jugla http://www.ambermarks.com/_Pieminekli/IsieApraksti/Riga/Jugla/StrazduJMuiz.htm
12	Jugla in 1944, around lake Velnezers http://www.zudusilatvija.lv/objects/object/22787/
14	Paper factory in Jugla, 1958 http://www.zudusilatvija.lv/objects/object/7896/
14, 15	Images of Jugla from 1968 and 1981 http://forum.myriga.info/?showtopic=3403
16	http://igrek.amzp.pl/maplist.php?cat=TPEURBALT&listtype=standard&listsort=sortoption1
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PERSPECTIVE VIEW ARRIVING FROM UMUGRAS STREET

CITY STRUCTURE 1:5 000

Design

The design for Jugla street 11, 13 building plot attempts to create a modest yet unique and high-grade built environment that would provide new residents with modern and prime quality dwelling space. The composition of three visually similar five-story apartment buildings, which are evenly distributed along the territory, fits naturally within the green environment and doesn't compete with complex and disorganized surroundings. The buildings are situated in each corner of nearly triangular building plot forming an enclosed and intimate courtyard with a small amphitheater in the 'heart' of it that plays an important role in the courtyard domain. The steps conveniently orientated towards South West works as multifunctional platform that naturally attracts and encourages the residents for spontaneous interaction and different outdoor activities, while also connecting courtyard to the parking level. The buildings themselves are designed as apartment blocks with two separate staircases each servicing six apartments on a typical floor. The basic geometry of the floor plan is rectangular but the volume is slightly folded in the middle manipulating the visual impression of building's length in reality and creating a spatially unique courtyard and backyards. Furthermore, the folded shape is the key for securing the new apartments with long and uninterrupted views.

The ingenious massing of the apartment block allows the volume to be multiplied without concern of forming a dull and spiritless ensemble. The volumes interact with each other in different angles creating both unique and rich shared public space as well as enclosed private backyard. Together buildings establish strong yet composed and pleasant milieu. There is also an economical advantage in constructing three similar buildings, which in return means that a lower selling price can be offered to attract tenants from diverse social groups.

Apparent altitude difference between the land unit and Jugla street appears to be a human made alteration executed by the time when current buildings were built. The elevation causes an undesired seclusion and it seems both artificial and irrelevant since there aren't any similar land manipulations present in adjacent territories. In this design the land is leveled out to follow

the slightly sloping Jugla street and to unite once isolated area with its surroundings. The newly developed territory will therefore open up to the green Jugla alley improving the safety and comfort of public space as well as providing easy and convenient access to dwellers or visitors of Jugla street 11, 13 territory. For more satisfactory integration, a new pedestrian bridge over Gaiļupīte stream is proposed as well as pedestrian paths connecting the inhabitants to Umurgas street.

Building technical parameters for this development are following:

- Actual entire land unit area (Z) 14 406 m²
- Sum of the all above-ground story area of all buildings (S) 13 137 m²
- Sum of the building areas of all buildings (L) 3 565 m²
- Sum of area occupied by access roads and parking lots above ground (L_2) 1 203 m²

Using these parameters the Building intensity (I), The indicator of vacant (green) territory (B) and Building density (A) can be calculated.

$$I = \frac{S}{Z} \times 100 = \frac{13137}{14406} \times 100 = 91.2\%$$

$$B = \frac{Z - L - L_2}{S} \times 100 = \frac{14406 - 3565 - 1203}{13137} \times 100 = 73.4\%$$

$$A = \frac{L}{Z} \times 100 = \frac{3565}{14406} \times 100 = 24.7\%$$

Maximum building intensity (I) of building plot with five story buildings is 140%, but minimal vacant (green) territory (B) 35%.

CIEMUPES STREET

JUGLAS STREET

PĀLES STREET

UMUGRAS STREET

+4.80

+6.04

+6.64

SITE PLAN 1:500

Architecture

The buildings are designed as a modern interpretation of an typicla Soviet-era high-rise apartment block with a strong emphasis on the quality for both living conditions and public domain. A careful planning, orientation and increased floor height to 3.4m are basis for securing the first target. The later one greatly relies on the quality of enclosing structures, and therefore special attention is paid to the building materials. A light site-cast concrete is chosen as a primary material for elevations due to its durability, aging conditions and aesthetics. To compliment that, a contrasting, darker material needs to be assigned. Dark bronze sheets are perfect fit for achieving visually unite composition of sculptural units on the upper – 5th floor. The top level walls and roof are entirely clad in bronze as are the surrounding walls of dwelling terraces on both ends of block.

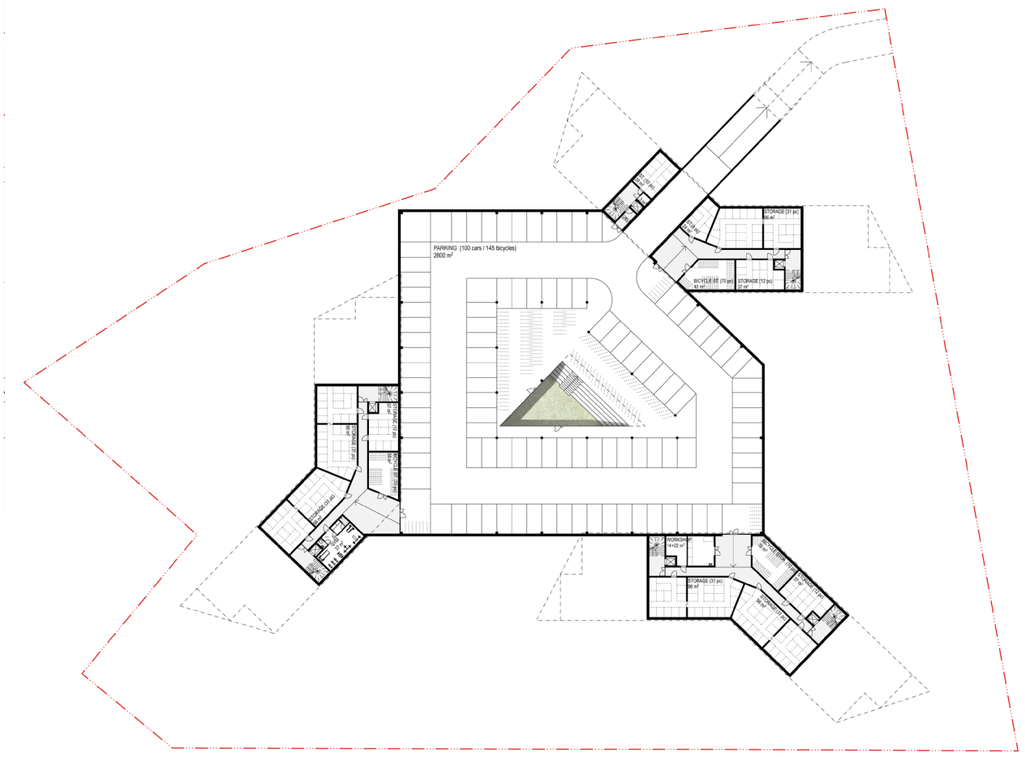
The massing is simple with some particularities - the fold in the middle of structure, faceted terraces at the both ends of volume and distinct upper floor gives the building a strong visual identity and character. The upper floor is designed as a group of sculptural units clad in different material playing with the perception of the size and height of the buildings.

1. SITE CAST CONCRETE, WHITE
2. MASSIVE BRONZE SHEETS
3. GLASS
4. LOCAL MASSIVE SANDSTONE

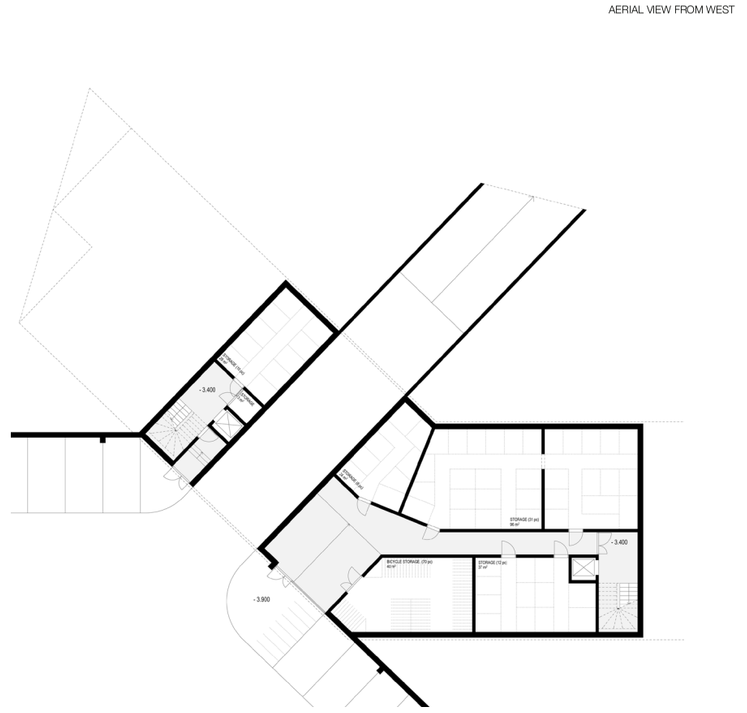
MASTER'S THESIS HIGH-RISE APARTMENT BLOCK IN RIGA NEIGHBOURHOOD JUGLA, LATVIA AUTHOR: EDGARS RACINS

AALTO-UNIVERSITY DEPARTMENT OF ARCHITECTURE MAJOR SUBJECT: BUILDING DESIGN THESIS SUPERVISOR: HANNU HUTTUNEN

AERIAL VIEW FROM WEST



UNDERGROUND PARKING / BASEMENT PLAN 1:500



BASEMENT PLAN 1:200

ELEVATION AND SECTION 1:200

Access

The main access to the territory is arranged as previously from the Jugla street serving both the residents and operative transport. Short term parking for few cars is established in close reach of building entrances while overnight parking is situated in underground parking with vehicle access through entry ramp from Jugla street. The access is located at the junction of Jugla and Ciemupe street, to form a clear intersection with easy and well functioning traffic flow.

Underground parking

Even though the underground parking is not commonly used in association with apartment buildings in suburbareas, the examples of nearby development aiming for reputation of higher standard environment for living encourage the use of chosen solution. Two out of four most recent developments just on the opposite side of the Jugla street have an underground parking. It is obvious that the benefits from placing the over-night parking underground are easily worth the costs. In this particular case the intension was not only to remove the cars from courtyard but also to create a well functioning parking with comfort and experience not that common in underground car parks. The key element for this is a natural light and nature! Small amphitheater with garden of roughly 75 m² is located right in the middle of space delivering plenty of daylight and some greenery while connecting the underground level to courtyard. The parking space itself is designed as a space located centrally between all three buildings, connecting them underground so that parking can be accessed indoors directly from your building. There is space for 100 cars and 145 bicycles underground. Thirteen more cars can be parked within courtyard territory. Additional space for bicycles can be found in close range of building entrances.

According to regulations every other apartment has to be provided with one parking space and every apartment has to be provided with one parking space for bicycle. Additionally, every 100 apartments have to be provided with one extra parking lot for car and every 30 apartments with additional 2 parking spaces for bicycle. Since there are 156 apartments in total it means that a minimum amount of parking lots are:

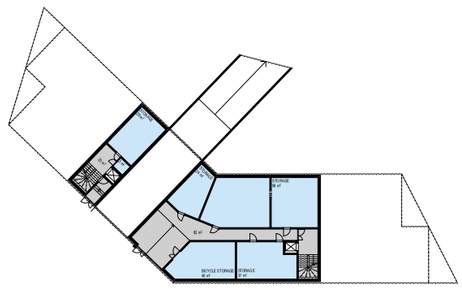
156 / 2 + 156 / 100 x 1 = 78 + 1 = 79

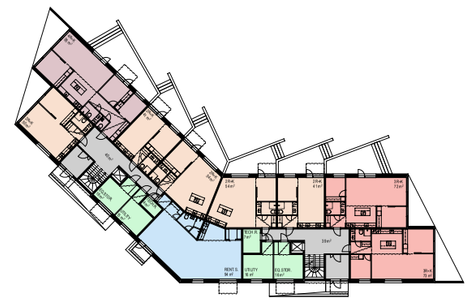
The desirable amount, of course, being 157 parking spaces. The minimum amount for bicycle parking would be accordingly:

156 x 1 + 156 / 30 x 2 = 156 + 10 = 166

MASTER'S THESIS HIGH-RISE APARTMENT BLOCK IN RIGA NEIGHBOURHOOD JUGLA, LATVIA AUTHOR: EDGARS RACINS
AALTO-UNIVERSITY DEPARTMENT OF ARCHITECTURE MAJOR SUBJECT: BUILDING DESIGN THESIS SUPERVISOR: HANNU HUTTUNEN

1. FLOOR PLAN 1:100





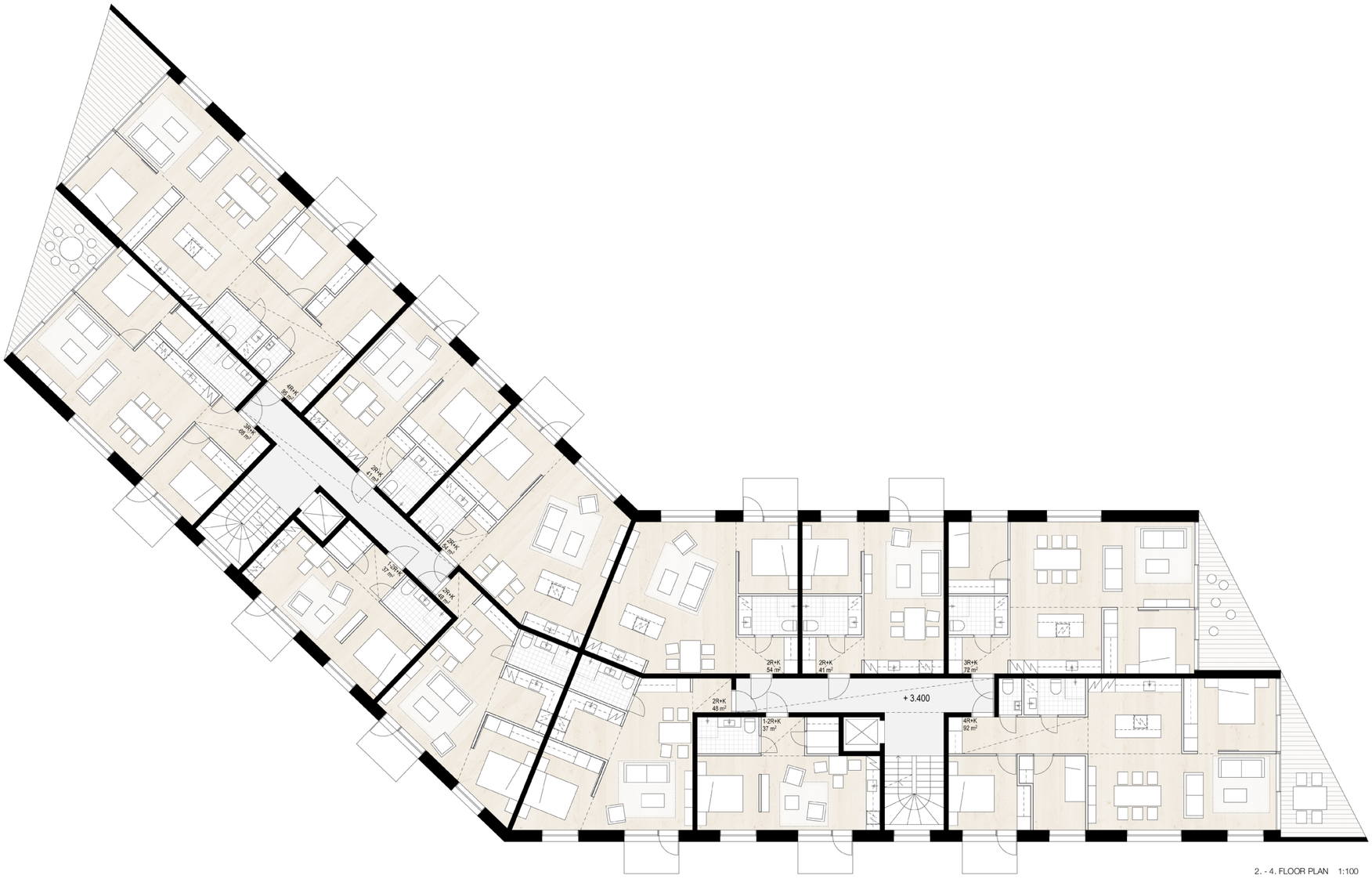
Therefore one can conclude that the minimum requirements are satisfied even though the desired end result where every apartment would have a parking lot is not reached with this solution.

Shared space

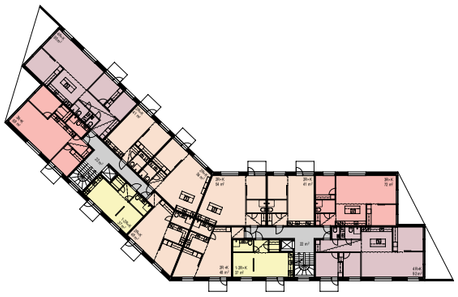
Spaces for common tenant use are located both in basement and on the first floor. The basement is mainly dedicated to storages but at the same time it is also a main access route straight to underground parking without leaving the building. In the basement of every building there is a space for dedicated apartment storages as well as bicycle storage. In addition there is a workshop and a small gym each located in one of the buildings for everyone to share.

First floor on the contrary is only partly occupied by common space, located on the entrance side of building. Space devoted to equipment storage and utility room is located in close reach of every entrance hall. The multifunctional space equipped with bathroom, small storage and kitchen can be leased out or used by community. If needed, this space can be accessed directly from outside.

ELEVATION 1:200



2. - 4. FLOOR PLAN 1:100



Basement

Lobby		x 2	= 105 m²
Tech. space		x 7	= 229 m²
Together			= 334 m²

1. Floor

2R + K	41 m²	x 2	= 82 m²
2R + K	50 m²	x 1	= 50 m²
2R + K	54 m²	x 2	= 108 m²
3R + K	72 m²	x 1	= 72 m²
3R + K	73 m²	x 1	= 73 m²
4R + K	95 m²	x 1	= 95 m²
			= 8 ap. / 480 m²
Rentable space		x 1	= 94 m²
Lobby		x 2	= 79 m²
Tech. space		x 6	= 74 m²
Together			= 727 m²

2. - 4. Floor

1-2R + K	37 m²	x 2	= 74 m²
2R + K	41 m²	x 2	= 82 m²
2R + K	48 m²	x 2	= 96 m²
2R + K	54 m²	x 2	= 108 m²
3R + K	68 m²	x 1	= 68 m²
3R + K	72 m²	x 1	= 72 m²
4R + K	92 m²	x 1	= 92 m²
4R + K	95 m²	x 1	= 95 m²
			= 12 ap. / 687 m²
Lobby		x 2	= 44 m²
Together			= 731 m²

5. Floor

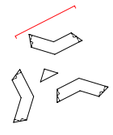
2R + K	62 m²	x 2	= 124 m²
3R + K	68 m²	x 1	= 68 m²
3R + K	72 m²	x 1	= 72 m²
3R + K	76 m²	x 2	= 152 m²
4R + K	92 m²	x 1	= 92 m²
4R + K	95 m²	x 1	= 95 m²
			= 8 ap. / 603 m²
Lobby		x 2	= 40 m²
Tech. space		x 2	= 4 m²
Together			= 647 m²
Totall area in building:			**= 3 901 m²**

Appartments in building:

1-2R + K	6 pcs
2R + K	25 pcs
3R + K	12 pcs
4R + K	9 pcs
	= 52 pcs

1. SITE CAST CONCRETE, WHITE
2. MASSIVE BRONZE SHEETS
3. GLASS
4. LOCAL MASSIVE SANDSTONE

ELEVATION 1:200



Floor plan

The typical floor plan is mirrored of two almost identical groups of flats with the exception of the three and four room apartments at both ends of the block. Two independent staircases each equipped with elevator serves six apartments on each floor. Mild adjustments are made to the first floor in order to accommodate essential common spaces and to the upper – fifth floor for more spacious and luxury apartments with better views from the top spot.

The distribution of dwelling typology follows the logic of the building. Larger - three and four room apartments are located and the ends of the block equipped with large terraces and views opening into two directions. One and two room apartments are located in the central section of the block opening only in one direction but still equipped with balcony. The apartments on fifth floor are slightly bigger and each has its own large terrace. There are no smaller units in the top floor to make the space for generous terraces and to allow the increase of two smaller apartments to be of more prominent size.

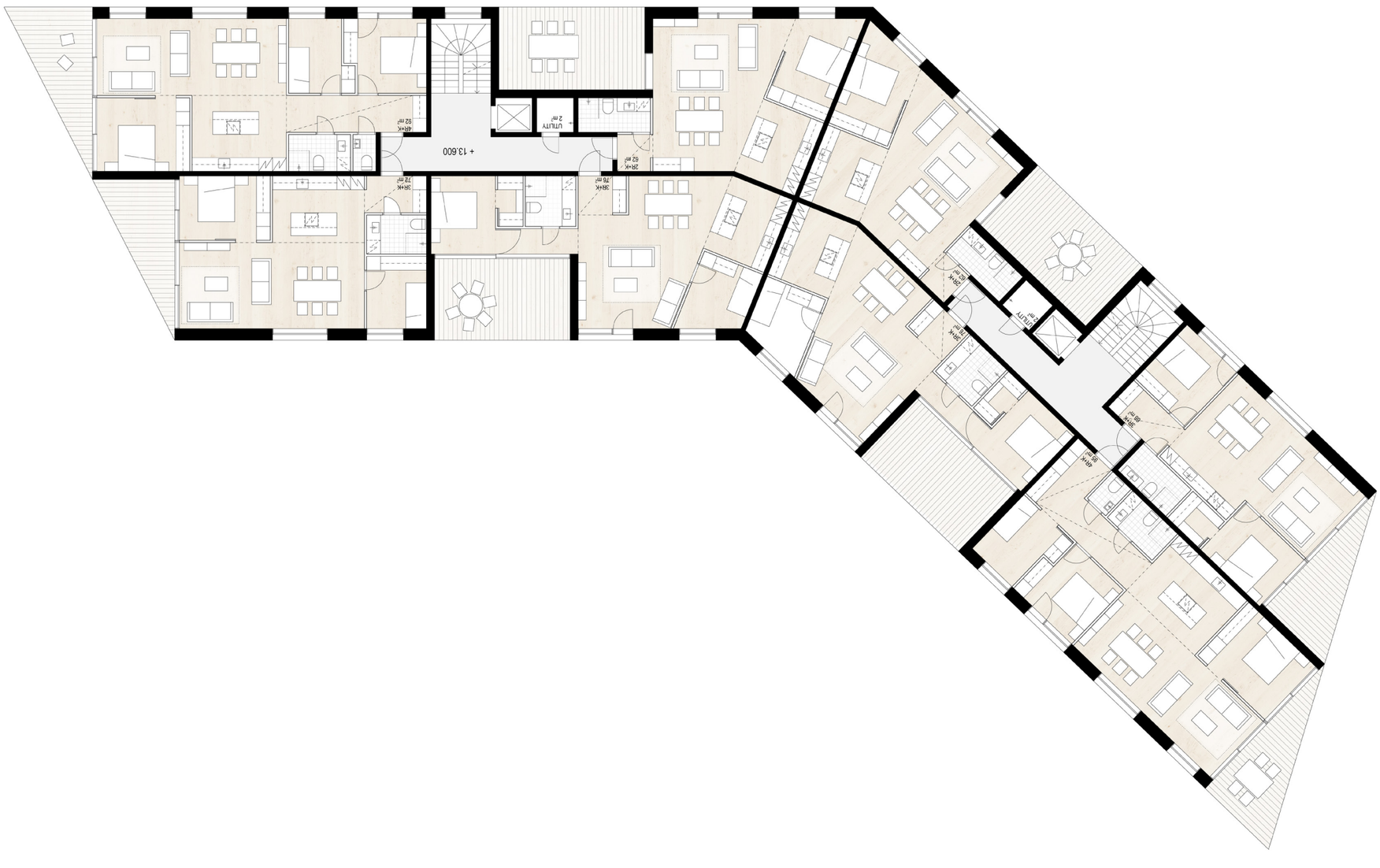
MASTER'S THESIS
AALTO-UNIVERSITY

HIGH-RISE APARTMENT BLOCK IN RIGA NEIGHBOURHOOD JUGLA, LATVIA
DEPARTMENT OF ARCHITECTURE

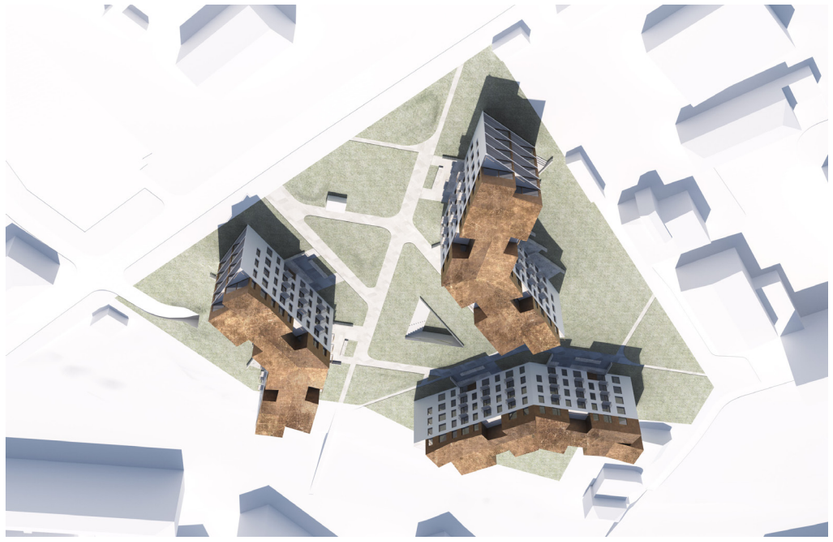
AUTHOR: EDGARS RACINS
MAJOR SUBJECT: BUILDING DESIGN

THESIS SUPERVISOR: HANNU HUTTUNEN

5. FLOOR PLAN 1:100

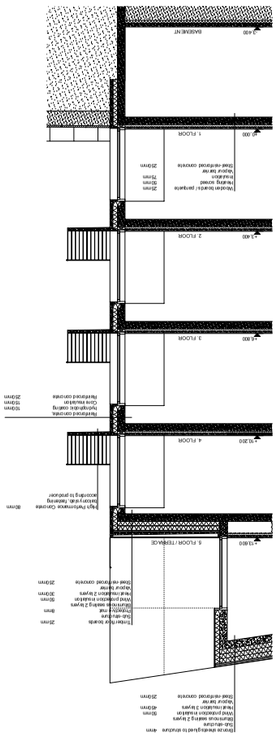


AERIAL VIEW FROM EAST

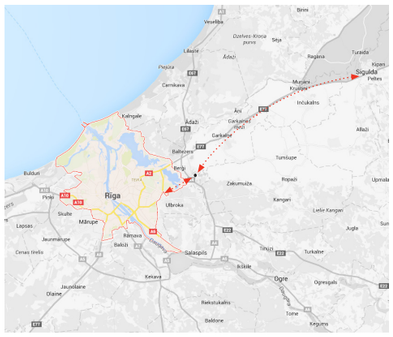


SECTION 1:200

SECTION DETAIL 1:100



PERSPECTIVE VIEW ARRIVING FROM JUGLAS STREET



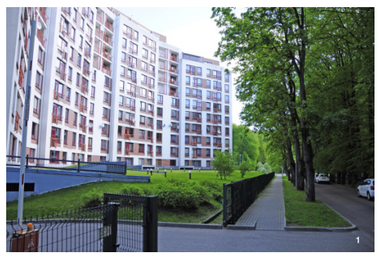
Location

According to strategy "Riga on its way towards sustainable city" published by Riga City Council City Development Department, Jugla neighborhood is located at the edge of suburb ring (yellow) meeting the green/blue periphery of nature, yet being well connected to city core (red) both by public transport and through main roads for private transport. Actually three main roads – Brivibas alley (also an A2 national road), Juglas and Bikernieku streets are intersecting the neighborhood, as well as Riga – Valmiera railway line with a dedicated station providing train access towards downtown coreand other cities such as Sigulda and Cesis in opposite direction. Jugla is only about 10 km away from the city center and a drive there via Brivibas street takes roughly 30 minutes. Public transport takes just slightly more – 35 minutes. The distance to City of Sigulda is almost 45 km and Cesis a little bit over 80 km.

Neighborhood

Just like many other neighborhoods in Riga, Jugla is characterized by the Soviet-era high-rise apartment buildings and most of the retailers along with other services concentrated by the Brivibas street. The spatial structure of neighborhood is quite complex and lacks compositional uniformity. It is hard to distinguish a strong local centre, instead there are several smaller local centres around which the developments are concentrated. These areas are not well-connected in between and functional integrity is missing. Therefore it is hard to talk about Jugla neighborhood in a general matter. The local conditions, for example reachability by public transport or public services, might differ radically when comparing the two parts of Jugla.

Despite vast 1409.9 ha accounting for Jugla's territory, making it the second biggest neighborhood in Riga, it is scarcely populated - only 18 inhabitants per hectare or 1932.76 inh/km^2, according to official statistics of Riga City Council City Development Department. The reason for low density is obvious when one takes look at the City Map. Roughly 23% of Jugla's surface is covered with water and another 42% consist of untouched and harnessed nature, leaving only around 35% of land to inhabit. Of the built area, housing accounts for 9% of territory, mixed-use development 7.2% and comparatively large area – 5.6% or 78,9 ha are built up with private houses. The public buildings cover only 2,5% of neighborhoods area while roads and streets cover up to 7,3% due to the wide Brivibas street red line passage. Though it is clear that the actual percentage is considerably higher when taking into account the inner yard overnight parking areas of high-rise residential buildings, which still remain the main problem of Jugla neighborhood.


1


2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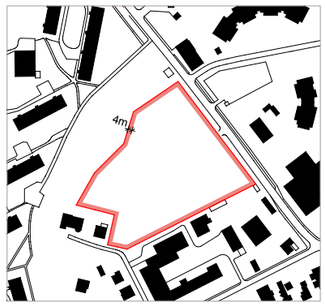
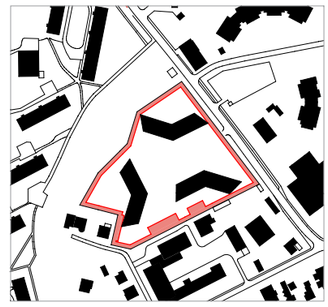
DISTANCE FROM THE RED LINE



DISTANCE FROM BORDER

PROTECTED AREA IN FRONT OF EXISTING BUILDINGS



ACTUAL BUILDING PLOT

MIN. REQUIRED DISTANCE FROM NEW STRUCTURE

Design regulations

The general requirements for spatial development planning, land use and building of the local level are defined in Riga City Council Regulations N° 34 (Riga City Council decision N° 749 on 20.12.2005) Regulations for the Planning, Use and Building of Riga Territory with supplementary graphical attachments N° 15., 16., 17., 19. and 20. The functional zone assigned to particular building plot requires that the Cabinet Regulations N° 340 (Adopted 30 June 2015) Regulations about Latvia Building standards LBN 211-15 'Residential Buildings' are followed. According to these regulations the main parameters guiding the building of territory are building intensity, the indicator of vacant (green) territory and building density. These building technical parameters are defined according to corresponding designated functional zone and planned amount of floors in structures being designed.

Building intensity is a proportion of the sum of the above-ground floor area of buildings and the area of the land unit. Building intensity (I) is calculated in percentage using the following formula:

$$I = \frac{S}{Z} \times 100\ \%, \text{ where}$$

S – a sum of the above-ground floor area of all buildings (m^2);
Z – actual entire land unit area (m^2).

The indicator of vacant (green) territory is a proportion of the vacant territory and the sum of all a sum of the above-ground floor area of all buildings. The indicator of vacant (green) territory (B) is calculated in percentages using the following formula:

$$B = \frac{Z - L_1 - L_2 + L_3 \times K}{S} \times 100\ \%, \text{ where}$$

Z – actual entire land unit area (m^2);
L1 - sum of the building areas of all buildings (m^2);
L2 - sum of area occupied by access roads and parking lots above ground (m^2);
L3 - area than can be partly accounted for vacant territory according to point 259 in regulations (m^2);
K - the factor of L3 according to point 259 in regulations
S – a sum of the above-ground floor area of all buildings (m^2);

Building density is a proportion of the built-up territory (sum of the building area of all buildings) to the area of the land unit. Building density (A) is calculated in percent using the following formula:

$$A = \frac{L}{Z} \times 100\ \%, \text{ where}$$

L – sum of the building areas of all buildings (m^2);
Z – actual entire land unit area (m^2).

As it was noticed earlier, these building technical parameters are related to number of floors for planned structures. The supplementary graphical attachment of Regulations for the Planning, Use and Building of Riga Territory N° 16 defines the maximal amount of floors for designed building in particular location, but the admissible maximum building intensity and minimal vacant territory have to be crosschecked from regulations according to the ones of design solution and following charts:

The maximal building intensity of building plot is:
70% 2 and less storeys
100% 3 storeys
120% 4 storeys
140% 5 storeys
160% 6 storeys
220% 7 - 9 storeys

The minimal vacant (green) territory of building plot is:
60% 2 and less storeys
50% 3 storeys
40% 4 storeys
35% 5 storeys
30% 6 storeys
25% 7 - 9 storeys

When considering the location of planned structure within the borders of land unit in question, there isn't a specific city plan illustrating the explicit borders for structures to be arranged along. Still there are several conditions that determines how the buildings can be situated in relation to border and surrounding buildings. One of them is building setback line that in accordance to the Protection Zone Law is a line, which determines the distance from red line to the buildings. It is in the spatial planning specified line of plot, starting from which, in the direction from street to the depth of plot, the main buildings may be located. If the building setback line is not established in particular land unit the minimal building setback line is defined as a certain distance from the protected zone reserved for the street and marked in the map with the red line in relation to the category of particular street. Jugla street is category E street meaning that the building setback line have to be at least 3m from the red line.
The permitted minimum distance between structures is determined in conformity with the fire safety requirements, regulations in the field of insolation and other regulations, but for the multi-story residential buildings it is not smaller than:

15m – between the longest elevations of 2 – 3 floor buildings;
20m – between the longest elevations of buildings with 4 or more floors;
10m – between the shortest elevations of buildings if there are windows of living room located and between the shortest elevation and longest elevation of other building.

The minimum distance of the designed building from the border of building plot is 4m if there are windows in the elevation facing this border.

TOPOGRAPHY MAP 1:1000

AERIAL VIEW OF JUGLA

Building plot

The building plot of Jugla street 11, 13 is a territory consisting from three parcels – 01000920303, 01000920304 and 01000920305 located side by side with two of them bordering Juglas street and the third one being within close reach of Umugras street at the South West corner of territory. From the Southern side the border is partly shared with a Riga Secondary School N° 16, built in 1964, and two other building lots marked as a mixed-use with a dwelling function territory. The last, North West border, is determined by protected natural landscape area where stream Gaiļupīte flows through connecting Jugla Lake with two smaller lakes Dambjapurvs ja Gaiļezers nearby. Right on the other side of stream Gaiļupīte a broad district of high-rise housing estate blocks from 60's covers the ground with a Jewish secondary school and Kindergarten N° 152 right at the heart of it. Similar development is present on the opposite side of Juglas street 11, 13 building plot towards South from Pales street, leaving substantial private house area in between. More recent structures are present on the opposite side of Juglas street where high-rise residential buildings such as Ezermala estate built in 2000, Vidzeme House built in 2004 and estate "Premjers" built in 2007 clearly presents persisting demand and interest in neighborhood. The strong presence of nature and nearby Jugla Lake, wide range of services, and convenient connections ensures a constant demand for dwelling in Jugla neighborhood.

The territory is currently quite isolated from its surroundings visually and physically. The surroundings as well as area in question are abundantly covered with trees that keep the current structures well hidden from a random passer-by. Physically the territory is detached by the natural landscape of riverbed at the North West edge of the land but on the street side there is a noticeable altitude difference, which is also apparent in the official topography map. Otherwise the territory is quite even, slowly descending towards riverbed particularly at the South West corner. The whole building plot is surrounded by fence to keep curious neighbors away from structures in critical condition.

Juglas street passing by the building plot is nowadays a rather quiet and green alley with not much traffic due to new traffic junction finished in 2008 diverting the car flow from Juglas street to Juglas krastmala street before entering the Brivibas street / A2 national road. Still, the peaceful part of Juglas street is conveniently connected directly to Brivibas street where the traffic flows outwards from the city and to Juglas krastmala street at the other end, providing easy access to main roads for new inhabitants.
Currently four two-story residential buildings and several ruins of constructions that appear to have served as storages occupy the building plot. Two smaller units are plastered brick buildings and other two are made from wood. All four buildings are in a very poor and not in habitable condition. Three of them are marked as wrecks in official topography map issued by the city from which two are even marked as degrading and dangerous for environment in the official site of Riga City Council Property Department. Therefore all current structures on the building plot have to be demolished from the site.